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# PROGRESS IN THE PREVENTION AND CONTROL OF AIR POLLUTION IN 1974, REPORT TO CONGRESS

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# PROGRESS in the PREVENTION & CONTROL of AIR POLLUTION in 1974

## Report to Congress

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# PROGRESS IN THE PREVENTION AND CONTROL OF AIR POLLUTION IN 1974

ANNUAL REPORT
OF THE
ADMINISTRATOR OF THE ENVIRONMENTAL
PROTECTION AGENCY

TO

THE CONGRESS OF THE UNITED STATES

IN COMPLIANCE WITH
THE CLEAN AIR ACT AS AMENDED

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# PREFACE

The Clean Air Act, as amended, authorizes a national program of air pollution research, regulation, and enforcement activities. This program is directed at the Federal level by the U. S. Environmental Protection Agency (EPA). However, primary responsibility for the prevention and control of air pollution at its source rests with State and local governments. EPA's role is to conduct research and development programs, set national goals (via standards and regulations), provide technical and financial assistance to the States, and, where necessary, supplement State implementation and enforcement programs.

Section 313 of the Clean Air Act requires the Administrator to report yearly on measures taken toward implementing the purpose and intent of the Act. Section 313 reads as follows:

> "Not later than six months after the effective date of this section and not later than January 10 of each calendar year beginning after such date, the Administrator shall report to the Congress on measures taken toward implementing the purpose and intent of this Act including, but not limited to, (1) the progress and problems associated with control of automotive exhaust emissions and the research efforts related thereto; (2) the development of air quality criteria and recommended emission control requirements; (3) the status of enforcement actions taken pursuant to this Act; (4) the status of State ambient air standards setting, including such plans for implementation and enforcement as have been developed; (5) the extent of development and expansion of air pollution monitoring systems; (6) progress and problems related to development of new and improved control techniques; (7) the development of quantitative and qualitative instrumentation to monitor emissions and air quality;

> (8) standards set or under consideration pursuant to title II of this Act; (9) the status of State, interstate, and local pollution control programs established pursuant to and assisted by this Act; and (10) the reports and recommendations made by the President's Air Quality Advisory Board."

This report covers the period January 1 to December 31, 1974, and describes the major elements of progress toward the prevention and control of air pollution that have been made by EPA since the last report.

# I. INTRODUCTION AND SUMMARY

This report reviews the progress that the U.S. Environmental Protection Agency (EPA) has made during the year 1974 in the control and prevention of air pollution. It follows the order of topics listed in Section 313 of the Clean Air Act, except that additional measures of progress have been added where appropriate.

The major events which took place during 1974 are briefly summarized here, and discussed more fully in the text of the report. Table 1, which follows, lists the major regulations and standards to control air pollution which were issued by EPA during 1974.

- Passage of the Energy Supply and Environmental Coordination Act, which:
    - set a new deadline of 1977 for interim automobile emissions standards for hydrocarbons and carbon monoxide, with the possibility for a 1-year extension.
    - calls for a review of each State Implementation Plan to determine whether revisions can be made to alleviate the shortages of clean fuels without interfering with attainment of NAAQS.
- Identification of 34 areas requiring transportation controls, and review of air quality data to determine whether additional areas will need these controls.
- Initiation of alternative automotive fuels feasibility program
- Review of National Ambient Air Quality Standards (NAAQS) by the National Academy of Sciences, which supported the standards and the bases on which they were set.
- Revisions and amendments proposed to the National Emissions Standards for Hazardous Pollutants asbestos and mercury.
- Promulgation of New Source Performance Standards for seven source categories, and proposal of standards for eight additional categories.
- Submission of EPA's final response to the remand of the NSPS petition for review in Portland vs Ruckelshause on November 5, 1974.

Table 1

Major Air Pollution Control Regulations and Standards Issued During 1974

| Subject | Date Published in *Federal Register* | Status | Discussed in Chapter |
|---|---|---|---|
| National Emission Standards for Hazardous Pollutant | | | |
| -Clarifying Amendment | May 3, 1974 | Final | III |
| -Increased Applicability | Oct. 25, 1974 | Proposed | III |
| New Source Performance Standard (Group II) | March 8, 1974 | Final | III |
| New Source Performance Standard (Group II-A) | Oct. 16, 1974 | Proposed | III |
| New Source Performance Standard (Group III) | October, 1974 | Proposed | III |
| New Source Performance Standard - general regulations | Sept/Oct, 1974 | Proposed | III |
| Regulations for the Prevention of Significant Deterioration of Air Quality | Dec. 5, 1974 | Final | V |
| Indirect Source Regulations | Feb. 25, 1974 | Final | V |
| Emission Standards for Supersonic Aircraft | July 22, 1974 | Proposed | II |

- Proposal under New Source Performance Standards of general regulations concerning the definition of modifications for NSPS application, procedures for submission of State plans for non-criteria pollutants, and use of continuous emission monitors.

- Initiation of 271 enforcement actions against stationary sources.

- Proposal of 188 potential problem areas for maintenance of air quality, with final designation of these areas scheduled for early in 1975.

- Promulgation of the area classification plan for prevention of significant deterioration of air quality, with a request to Congress to further review this issue.

- Promulgation of regulations requiring States to develop procedures to assess the air quality impact of indirect sources, later suspended until July 1, 1975.

- Discovery of data from CO and $O_x$ monitors in Priority III AQCR's showing values exceeding the national ambient air quality standards for these two pollutants.

- Monitoring which shows average concentrations of TSP and $SO_2$ on a predominant downward trend in the nation as a whole.

- Techniques for detection of vinyl chloride developed as a laboratory prototype.

- Promulgation of regulations for control of emissions from diesel powered, light-duty trucks.

- Issuance of an Advance Notice of Proposed Rulemaking to control emissions from new motorcycles.

- Publication of an Advance Notice of Proposed Rulemaking for conversion of standards for motor-vehicle hydrocarbon exhaust emissions to a non-methane basis.

- Promulgation of regulations requiring certification of new vehicles offered for sale in high altitude regions.

- Proposal of emissions standards for supersonic aircraft.

- Increase of EPA support of State and local control agencies from $50.5 million in Fiscal Year 1973 to $51.5 in Fiscal Year 1974.

- Increase of State and local control agency personnel from 6195 in Fiscal Year 1973 to 7236 in Fiscal Year 1974.

- Increase of State and local control agency funding by 13% and manpower by 15% from 1973 to 1974.

## II. THE PROGRESS AND PROBLEMS ASSOCIATED WITH CONTROL OF MOBILE SOURCE EMISSIONS AND THE RESEARCH EFFORTS RELATED THERETO

Title II of the Clean Air Act mandated at least 90 percent reductions in carbon monoxide (CO), hydrocarbons (HC), and oxides of nitrogen ($NO_x$) emissions from light-duty vehicles and engines, and gave the Administrator authority to prescribe certain other emission standards for automobiles, trucks, and planes.

### MEASURES TAKEN TO IMPLEMENT MANDATED TITLE II EMISSION STANDARDS

### Suspension of HC and CO Emission Standards for 1975 Model Year Autos

In 1972, EPA denied the requests of five manufacturers for 1-year suspension of the nationwide statutory 1975 automobile emission standards for HC and CO. As a result of a decision by the U.S. Court of Appeals for the District of Columbia Circuit, EPA in 1973 was required to reconsider its earlier decision. Following extensive public hearings, EPA on April 11, 1973, suspended the statutory 1975 HC and CO emission standards until 1976 and established a set of interim standards for 1975. A more restrictive set of interim standards was established for vehicles sold in California than for vehicles sold in the rest of the country. The California standards were designed to require the use of catalyst systems on automobiles sold in that State. Suspension of the nationwide standards was intended to avoid economic difficulties involved in forcing catalyst technology on all 1975 domestic vehicles, while the State of California adopted standards which provide for a gradual phasing-in of catalyst technology prior to 1976. However, many manufacturers have opted to use catalysts on most of their "non-California" 1975 vehicles, due to the fuel economy advantage that catalysts offer.

### Suspension of NOx Emission Standard for 1976 Model Year Light-Duty Vehicles

On July 30, 1973, after 9 days of public hearings, the Administrator granted Ford Motor Company, General Motors Corporation, and Chrysler Corporation a suspension of the effective date of the statutory 1976 NOx emission standard for light-duty vehicles for 1 year as allowed by Section 202(b)(5)(D) of the Clean Air Act.

The Administrator established an interim standard of 2.0 grams per mile. The suspended standard was 0.4 grams per mile.

### Extension of Deadlines for Statutory Emission Standards by the Environmental Supply and Energy Coordination Act of 1974

-- With the passage of Energy Supply and Environmental Coordination Act of 1974, the status of the interim standards changed and new deadlines were set for achievement of the standards, corresponding to the 90% reductions mandated by the Clean Air Act of 1970. The new Act provides that those statutory standards for HC and CO (originally to be met by the 1975 model year) are now to be met by the 1977 model year with the possibility of an additional 1-year extension. The Clean Air Act statutory standards for NOx (originally to be met by the 1976 model year) are now to be met by the 1978 model year. Current standards reflecting the Energy Act provisions and EPA promulgations are summarized in Tables 2 and 3.

### Certification Testing

Certification of new passenger cars for compliance with Federal emission standards began with 1968 model year vehicles. The program includes testing prototype vehicles which represent all new motor vehicles sold in the United States. The manufacturer is required to submit data showing that prototypes conform to Federal standards for exhaust, crankcase, and fuel evaporative emissions. EPA carries out a review of the manufacturer's data and performs conformatory tests on selected prototypes.

## TABLE 2

## EXISTING EMISSIONS STANDARDS

| TYPE OF VEHICLE | | 1975 | | | 1976 | | | 1977a/ | | | 1978 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | HC | CO | NOx | HC | CO | NOx | HC | CO | NOx | HC | CO | NOx |
| | | (emissions expressed as grams per mile) | | | | | | | | | | | |
| Light-duty gasoline passenger vehicle | (National) | 1.5 | 15 | 3.1 | 1.5 | 15 | 3.1 | 0.41 | 3.4 | 2.0 | 0.41 | 3.4 | 0.4 |
| | (California) | .9 | 9 | 2.0 | .9 | 9 | 2.0 | | | | | | |
| Light-duty diesel passenger vehicle | (National) | 1.5 | 15 | 3.1 | 1.5 | 15 | 3.1 | 0.41 | 3.4 | 2.0 | 0.41 | 3.4 | 0.4 |
| | (California) | .9 | 9 | 2.0 | .9 | 9 | 2.0 | | | | | | |
| Light-duty gasoline truck | (National) | 2.0 | 20 | 3.1 | 2.0 | 20 | 3.1 | 2.0 | 20 | 3.1 | | | |
| | (California) | 2.0 | 20 | 2.0 | .9 | 17 | 2.0 | | | | | | |
| Light-duty diesel truck (proposed) | (National) | | | | 2.0 | 20 | 3.1 | 2.0 | 20 | 3.1 | | | |

a/ NOTE: The 1977 emission standards for hydrocarbons and carbon monoxide are listed in this table. The guidelines for determination of a 1 year suspension of HC and CO are found in House Report 93-1013 (pages 23-25).

## TABLE 3

## EMISSIONS STANDARDS FOR HEAVY-DUTY GASOLINE AND DIESEL ENGINES

| Type of Engine | | 1975 and 1976 Model years[(a)]<br>(grams/brake horespower/hour)<br>HC and NOx[(b)] | CO |
|---|---|---|---|
| Heavy-duty<br>Gasoline engine | (National)<br>(California) | 16<br>10 | 40<br>30 |
| Heavy-duty<br>Diesel engine | (National)<br>(California) | 16<br>10 | 40<br>30 |

a) Standards for 1977 and 1978 have not been set.

b) Standards apply to the combined emission of hydrocarbon and nitrogen oxides.

During the past year, certification of most 1975 model year light-duty vehicles and heavy-duty engines was completed, and certification of 1976 models is now underway. The certification program for the 1975 model year involved monitoring the test programs of approximately 60 manufacturers, and reviewing durability data from approximately 450 vehicles and engines, and emission data from 700 vehicles and engines. These figures represent an increase over the previous model year of 100% for durability checks and 42% for emissions checks. To reach this level of certification, EPA conducted approximately 2,500 planned emissions tests, or an increase of 100% over the previous year. The increase resulted primarily from California's adoption of a separate set of emission standards which most manufacturers met by producing a different vehicle to be marketed only in California.

As a result of the unauthorized and unreported maintenance practices by Ford Motor Company on 1973 certification vehicles, EPA has expanded its certification program to increase surveillance of domestic manufacturers' testing programs. EPA inspectors now perform periodic checks of manufacturers' facilities and records to insure that established test procedures were followed, and investigate reports of possible violations of regulations. In-depth inspections of major manufacturers' programs are made annually.

In addition to the requirements for certification of motor vehicles and engines prior to mass production, EPA has regulations governing changes to vehicles and engines during mass production and during introduction of new models. Approximately 850 requests for such changes during this past calendar year were reviewed and more than 200 tests were conducted to determine compliance with standards.

Since the 1971 model year, emission test results have been published in the Federal Register. Beginning with the 1973 model year, the fuel consumption during the emission test has also been determined and published in the Federal Register, as well as in a booklet for consumer use. Fuel economy information was presented to car buyers by manufacturers participating in the EPA/FEA sponsored fuel economy labeling program. The driving cycle used in that emission test is representative of typical city driving common to urban commuting. To provide the consumer with additional fuel economy information, a highway fuel economy test procedure was developed early this year for testing 1975 and later model year vehicles. EPA will be able to provide emission test results and a broad picture of fuel economy test results for consumers who are concerned with both air quality and fuel economy.

## Assessment of Mobile Source Technology

More than 70 percent of all 1975 model cars are expected to be equipped with catalysts, a considerably larger number than EPA's earlier expectations. The 49-State interim standards for the 1975 model year (excluding California) permit manufacturers to choose between catalyst and noncatalyst systems. The greater than expected use of catalysts for the 1975 model year results from the fuel economy advantage they offer. A problem recently discovered - sulfate emissions from catalysts - is discussed on page 21.

The sales-weighted fuel economy of the 1975 model year fleet, assuming the same model mix in 1974 and 1975, is 13.5 percent better than the 1974 fleet according to EPA certification data. In addition to catalysts changes in carburetion, lower axle ratios, and electronic ignition systems will contribute to improved fuel economy.

In meeting past emission standards, most manufacturers used the same basic approach of engine modification (i.e., spark retard, intake manifold preheating and faster acting chokes) and exhaust gas recirculation. The 1975 models are utilizing a greater variety of control approaches. Saab, for example, is using fuel injection and no catalyst to meet both the Federal and California interim standards. Mazda is using a thermal reactor. Honda will use its compound vortex controlled combustion (CVCC) stratified charge engine to meet the California interim standards.

EPA's technical staff have analyzed extensive information provided by automobile manufacturers under the provisions of Section 202(b)(4) concerning their progress toward meeting the Federal emission standards. The paragraphs which follow represent the collective judgement of EPA engineers directly responsible for the interpretation and analysis of the information.

It is expected that manufacturers will not need to drop many, if any, of the line of vehicles offered in the 1975 model year in order to meet the 0.41 grams/mile HC, 3.4 grams/mile CO, and 2.0 grams/mile $NO_x$ standards required by Congress for the 1977 model year. Fuel economy at these levels will depend heavily on the advances made beyond the systems designed to meet the 1975 California interim standards. If manufacturers do nothing but add spark retard to their California systems, there will be significant losses of fuel economy on 1977 models relative to 1975 models. If manufacturers are willing to increase the costs of emission control systems, such techniques as improved catalyst formulation and configuration, improved quick-heat manifolds, and improved exhaust gas recirculation can be used to make the average fuel economy of 1977 models as good or better than that of 1975 models.

Automobile industry research to meet the Clean Air Act statutory levels was drastically reduced during 1973 due to the uncertainty of the need to meet a 0.40 grams/mile NOx standard. The primary obstacle to meeting the standard with reducing catalysts or single bed oxidation-reduction catalysts appears to be the lack of an advanced fuel metering system and advanced hydrocarbon control techniques. The use of an oxidation catalyst in front of the reduction catalyst shows promise of avoiding sudden increases in oxygen concentration caused by the lack of precise fuel metering. In general, a 0.40 NOx standard, the present legislative target for light-duty passenger vehicles, would be expected to solidify the use of catalytic technology.

## TRANSPORTATION CONTROL PLANS

Some 34 metropolitan areas in 23 States (including the District of Columbia) are currently required to implement transportation control measures, in addition to stationary source emissions controls and the Federal new car emission controls, to attain ambient air quality standards for CO or photochemical oxidants. In addition, the latest air quality data are being examined to identify other metropolitan areas in which air quality standards for CO or photochemical oxidants might be exceeded. Initial review of these data indicates that measures similar to transportation controls may be needed in 20 additional areas. (See Chapter VI.)

A number of States submitted transportation control plans for EPA's approval. When review of the State plan did not demonstrate that air quality standards would be attained, EPA (1) published notice to that effect in the Federal Register, and (2) proposed a transportation control plan. EPA's proposed plans were presented at hearings to permit public participation in the proposed rulemaking. For those States that did not prepare and submit transportation control measures, EPA published in the Federal Register proposed strategies to reduce CO or HC emissions from motor vehicles. Public hearings were also held to consider these proposed transportation control plans. The promulgation of EPA-proposed rulemaking in the Federal Register was generally completed in January of 1974. Table 4 summarizes the actions EPA has taken to date on transportation control plans. It is EPA policy to withdraw its proposed or promulgated plans as soon as an approvable State plan is submitted. In certain areas, such as Colorado, additional portions of plans have been submitted and approved since the plan was promulgated by EPA.

The transportation control plans have been worked out through close cooperation between Federal, State, and local officials. The following control measures may be used in transportation control plans: filling storage tanks at service stations; filling auto tanks; loading and unloading barges; solvent and degreasing operations; architectural coating operations; operations of dry cleaning establishments; inspection and maintenance of both light-duty and heavy-duty vehicles; improved mass transit; improved traffic flow; bus-car pool lanes; car-pool matching system; transportation by-pass; parking restrictions; bridge tolls;

vehicle-free zones; delivery bans, idling and taxi cruise restrictions; motorcycle limits; mechanical retrofit by vacuum spark advance disconnect, air bleed, catalyst, high-altitude modifications, and truck retrofit; and gasoline limitations. In the California cities where auto-related air pollution is generally considered to be among the worst in the Nation, the transportation controls include most of those listed. Most of the other urban plans contain some combination of these controls, depending on the severity of the local air pollution problem.

Progress has been made in implementing all these controls, especially with inspection/maintenance programs, bus lanes, employer incentive programs, and parking management plans. The need for these strategies has generated a great deal of local activity, particularly in the development of parking management plans for five California cities as well as for Portland, Oregon and for Seattle, Washington.

During 1974 court suits involving transportation control plans in Massachusetts, New York, Pennsylvania, and Texas were decided. Wherever the issue was raised, these upheld EPA's authority to impose transportation control-type measures requiring compliance by both private parties and governmental entities. In two cases, EPA was required to further validate its data base before completing implementation of some features of the plans. These technical reviews are being completed at this time, and are tending to show the need for measures equal to or more stringent than those in the original plans.

EPA has asked Congress for flexibility in working out achievable schedules for those cities requiring drastic control measures. On March 22, 1974, EPA proposed amendments to the Clean Air Act in order to deal realistically with specific problems of inability to achieve the statutory deadline for the ambient air quality standards in severe problem areas such as Los Angeles. However, EPA believes that all of the control techniques are technically feasible, and except for severe gasoline limitations, reasonable for most areas.

## Table 4

## Areas Implementing Transportation Control Plans

1. Boston, Massachusetts (E)
2. Springfield, Massachusetts (E)
3. New York City, New York (S)
4. Rochester, New York (S)
5. New Jersey Suburbs of N.Y.C. (E)
6. New Jersey Suburbs of Philadelphia (E)
7. Philadelphia, Pennsylvania (S/E)
8. Pittsburgh, Pennsylvania (E)
9. Baltimore, Maryland (E)
10. Maryland Suburbs of Washington, D.C. (S/E)
11. Virginia Suburbs of Washington, D.C. (S/E)
12. Washington, D.C. (S/E)
13. Chicago, Illinois (E)
14. Indianapolis, Indiania (E)
15. Minneapolis, Minnesota (S)
16. Cincinnati, Ohio (S/E)
17. Austin-Waco, Texas (E)
18. Corpus Christi, Texas (E)
19. Houston-Galveston, Texas (E)
20. Dallas - Fort Worth, Texas (E)
21. San Antonio, Texas (E)
22. El Paso, Texas (E)
23. Denver, Colorado (S/E)
24. Salt Lake City, Utah (S/E)
25. Phoenix-Tucson, Arizona (S/E)
26. San Francisco, California (S/E)
27. Los Angeles, California (S/E)
28. San Diego, California (S/E)
29. Fresno, California (S/E)
30. Sacramento, California (S/E)
31. Portland, Oregon (S)
32. Seattle, Washington (S/E)
33. Spokane, Washington (S/E)
34. Fairbanks, Alaska (E)

(E) = EPA promulgated controls
(S) = State submitted controls
(S/E) = Both acceptable State controls and promulgation of additional EPA measures

## ADDITIONAL ACTIVITIES IN THE MOBILE SOURCE AREA

### $NO_x$ Emission Standard

EPA has recommended (November 1973) that Congress consider the revision of the 90% $NO_x$ emission reduction for passenger cars required in 1978. The $NO_x$ emission standard will be discussed, along with the HC and CO standards and fuel economy in the combined 202(b)(4) and 202(b)(5) hearings to be held by EPA in the spring of 1975. Further recommendations for the level and timing of passenger car emission standards will follow those hearings.

### Automotive Exhaust Emission Survey

As often as practical, EPA develops current data on emissions of in-use vehicles so that State and local agencies, Federal Air pollution officials, engine and vehicle manufacturers, and concerned citizens can estimate the impact of motor vehicle emissions on air quality.

Light Duty Vehicles. -- The most recent study involved testing of over 1,000 1966 to 1972 model year vehicles based on the procedures applicable to certification of 1975 model year vehicles. This study, the second in this series, continues to show a significant downward trend in HC and CO emissions since the advent of Federal emissions standards. During the same time period that HC and CO levels decreased levels of NOx emissions increased. NOx emissions were not regulated until the 1973 model year and have remained somewhat stable since that time. Comparison between this study and the prior one shows that average HC and CO emission levels are adversely affected by increasing vehicle age and mileage.

The third program in this series, the results of which are in a preliminary form, indicate that the general year-to-year downward trend in HC and CO emissions is continuing. Data on 1973 and 1974 model year vehicles also shows that the recent standards for NOx emissions have resulted in a drop in levels of this pollutant from the 1968-1972 model year values.

The fourth program in this series will begin soon and will be the first to provide large scale testing of catalyst-equipped automobiles in the hands of private owners.

A report entitled "Refinement of the Automobile Exhaust Emission Modal Analysis Model" has been completed for EPA. This report updates an earlier work in describing a mathmatical model and allied computer programs for calculating the emissions of groups of vehicles over any specified driving sequence. The techniques prescribed in this report will be used in air quality impact analysis.

Heavy-Duty Vehicles. -- A contract was completed which provided for monitoring exhaust emissions from 1970 and 1971 model year heavy-duty gasoline-powered vehicles. This work involved simulation of the 1970 Federal Test Procedure on a chassis dynamometer. A similar contract covering emission surveillance of heavy-duty vehicles powered by diesel engines has been completed.

A third contract is underway to measure exhaust emissions from pre-controlled gasoline-powered vehicles during actual operation over a prescribed road route. This will complete the work initiated earlier on diesel-powered and controlled gasoline-powered trucks and will result in a consolidated report on all three programs.

The most recent program in this series is directed toward testing various types of heavy-duty vehicles in a manner similar to that used in certification of light-duty vehicles. Both diesel and gasoline-powered trucks will be operated on chassis dynamometers using transient driving cycles representative of typical operation in urban and suburban situtations. This type of testing differs from the current Federal Test Procedure which provides that engines alone be operated at various steady state conditions on an engine dynamometer. Results from this program will be more directly useful in air quality assessments as well as providing an evaluation of such techniques for potential use in certification testing.

## Auto Fuel Economy Labeling Program

In the President's Energy Message to Congress of April 16, 1973, EPA was assigned, in cooperation with the Department of Commerce and the Council on Environmental Quality, the responsibility for developing a program to inform the public of fuel economy characteristics of new automobiles. EPA instituted a voluntary fuel economy labeling program for automobiles in the 1974 model year and expanded the program in the 1975 model year.

Presently over 90% of all cars sold in the United States are covered by the voluntary labeling program. Usually these cars bear a label which gives a sales-weighted average fuel economy for all cars tested by EPA which represent cars of that same manufacturer, engine size and car line. In some cases, the label may also specify that the fuel economy results are representative also of cars of the same weight, transmission, and axle ratio. Each label bears two fuel economy figures--one for city driving and one for highway driving. The city fuel economy figure is derived from the EPA emission certification test; the highway fuel economy figure is derived from a special highway driving cycle test performed on all certification cars tested by EPA.

EPA has also published, in cooperation with the Federal Energy Administration, a fuel economy guide which provides a complete listing of fuel economy results for all 1975 model year passenger cars and light trucks. This pamphlet describes the concept of fuel economy and stresses its importance as a purchase criterion for new car buyers.

## Emissions at Nonstandard Temperatures

Ambient temperatures outside the 68° to 86° F range specified in the Federal procedure for emission testing of light-duty vehicles were studied in a program conducted for EPA by the U. S. Bureau of Mines. The vehicles tested included precontrol (1967) models, production cars from model year 1969 through 1974, several developmental cars equipped with advanced emission control systems (including catalytic converters), and a diesel and a stratified charge powered car. The test temperature ranged from 20° to 110°F. Cars equipped with air conditioners were also tested at 110°F with the air conditioner in operation. The tests show that exhaust emissions are adversely affected by deviations from the standard test temperature of 75°F and by air conditioner operation. Fuel economy is adversely affected by temperatures lower than 75°F and by air conditioner operation. Emissions of hydrocarbons and carbon monoxide are more sensitive to ambient temperature changes than emissions of nitrogen oxides. In general, as the absolute level of emissions in the newer and developmental cars drops, the sensitivity to change in temperature becomes greater. Of all 26 cars tested, the diesel and the stratified charge cars are lowest in emissions, highest in fuel economy, and least sensitive to ambient temperature.

## Characterization of Currently Unregulated Emissions

In prior years, studies on unregulated emissions from motor vehicles have concentrated on characterization of reactive hydrocarbons, aldehydes, polycyclic organic matter (POM) and particulate emissions. More recently, other unregulated pollutants have been identified and are being thoroughly investigated by EPA. These new compounds include sulfates, platinum and other noble metal emissions from catalysts, and miscellaneous compounds such as nickel and hydrogen sulfide.

EPA's Office of Research and Development has recommended classifying all hydrocarbons as reactive except for five compounds (one of which is methane) which are generally considered totally non-reactive photochemically. Instrumentation for measuring reactive hydrocarbons has been developed at EPA's National Environmental Research Center in Research Triangle Park, North Carolina. The Motor Vehicle Emissions Laboratory in Ann Arbor is setting up this instrumentation to measure reactive hydrocarbons by this reactivity scale. However, EPA is also investigating the feasibility of having a non-methane emission standard, which would be inherently simpler than the reactivity approach. Thus, lower priority has been given this area of investigation.

While aldehyde compounds are a distinct chemical class from hydrocarbons, they are considered in conjunction with reactive hydrocarbons since both are photochemically reactive. Routine measurement of aldehyde emissions is conducted on advance prototype vehicles sent to EPA for testing. Although isolated points show high aldehyde levels, this work continues to show that aldehydes generally amount to only about 10 percent of the total hydrocarbon emissions.

Since previous work showed that properly functioning advanced light-duty vehicles (including those equipped with catalytic converters) emit significantly small amounts of POM, little has been done in this area the past year. However, investigations of POM emissions from light and heavy-duty diesel vehicles are currently being conducted.

Under EPA contract, higher particulate emissions from catalyst-equipped vehicles were measured in 1972. During this work, the contractor discovered that these cars also emit higher levels of sulfates. EPA then began intensive research in the sulfate area. Contract work was recently completed to measure total particulate emissions from advanced prototype vehicles. EPA has recently aquired the in-house ability to measure particulate emissions from light-duty vehicles, so the total level and composition of these emissions are being assessed.

### Sulfate Emissions from Catalyst-Equipped Vehicles

Since the discovery of sulfate emissions, more extensive characterization of these emissions has been done by various groups, including EPA's Office of Mobile Source Air Pollution Control and Office of Research and Development.

EPA has measured sulfate emissions on a number of different catalyst, noncatalyst, and alternative engine automobiles. Measurements were made by a variety of methods under various steady state cruise conditions and on the LA-4 driving cycle used in certifying light-duty vehicles. The lack of a standard measurement procedure has hindered the comparison of data and to some extent, impeded further research.

Results to date on the sulfate question point to the following tentative conclusions:

- Noncatalyst cars with conventional internal combustion engines emit very low levels of sulfates. Data from EPA-ORD, GM, Ford, and Exxon show sulfate emissions to be about 0.001 grams per mile or less than 1 percent of the fuel sulfur with the remainder being $SO_2$. Chrysler data indicates that sulfate emissions from noncatalyst cars are lower for leaded than non-leaded fuel.

- Catalyst-equipped cars emit more sulfates than non-catalyst cars.
- Pelleted catalysts emit substantially lower levels of sulfates than monolith catalysts in the EPA Test Procedure. At higher speeds, the emission levels of the two types of catalysts appear to be similar. The difference may be due to sulfate storage on the pelleted catalysts at low speeds.

Using available data on sulfuric acid emissions from catalyst-equipped cars and anticipated fuel sulfur levels, the EPA has also employed several predictive models to estimate the increase in exposure to acid sulfates likely to result under various assumptions of traffic, meteorology, and extent of use of catalysts on cars. These studies, whose results were presented by the EPA to the Senate Public Works Committee early this year, show that when catalyst-equipped cars account for about 25% of miles driven (roughly two model years equipped with catalysts), the additional exposure of commuters on our busiest expressways to acid sulfates during periods of low atmospheric dispersion would exceed levels associated with adverse health effects in susceptible segments (about 10%) of the population. In less busy areas, such levels would be anticipated after perhaps six model years were catalyst-equipped. It should be emphasized that while these projections have been based on preliminary information, they indicate a need for close study of this potential adverse side effect of catalyst usage. Additional studies of automotive sulfate emissions which the EPA is conducting will obtain addtional characterization data, develop more reliable measurement methods and further assess the technology for control of sulfate emissions.

If it is confirmed that continued use of oxidation catalysts would result in dangerous levels of sulfates or other pollutants, EPA will take regulatory action to prevent such a condition from occurring. With respect to sulfate emissions in particular, EPA would have basically two options.

One would be to restrict the amount of sulfur contained in the unleaded gasoline used by catalyst-equipped cars. Removing the sulfur-containing impurities from the gasoline would eliminate the sulfate emissions. The technology for doing this in the refining process is known, but implementation of this approach would be expensive and it would take some time for all refiners to build up the required capacity. EPA is studying this further, as well as possible interim steps to maximize the use of low sulfur refinery products in the unleaded gasoline.

The other alternative would be to adopt an emission standard limiting the auto manufacturer in terms of the amount of sulfates his cars may emit. The manufacturer would have two possible ways of responding to such a standard. One would be to drop the catalyst and change over to an alternative engine. This would take a number of years to fully implement since the lead time for manufacturers to obtain the new tooling needed to manufacture an alternative engine is quite long. Alternatively, the manufacturers might be able to change the design of their catalyst systems to minimize the formation of sulfates or install devices to trap or neutralize the sulfates and prevent their emission. Such devices are theoretically possible, but proven technology to accomplish this doesn't exist at this time.

## Alternative Automotive Fuels

In 1974, the Environmental Protection Agency initiated a program to investigate the feasibility of alternative automotive fuels to conventional gasoline and distillate fuels from petroleum. Feasibility studies were initiated for the selection of the most promising future fuels. As a result of these studies which were completed at the beginning of FY 1975, research investigations are currently in progress to characterize the properties and auto engine performance of the following fuels:

- Gasoline-like fuels from coal and oil shale.
- Unconventional fuels from non-petroleum energy resources - e.g., methanol from coal.

These alternative fuels are considered as promising additions to the use of conventional fuels for the time period 1980-2000. Beyond this time period it is contemplated that synthetic hydrocarbons, and possibly hydrogen, will be produced for automotive transportation from one or more non-fossil energy resources.

## Clean Car Incentive Program

The Federal Clean Car Incentive Program is designed to foster development of new types of low-emission vehicles capable of meeting 1978 standards. EPA leases a candidate prototype which is subjected to stringent emission and performance tests. If the prototype passes the initial tests, EPA may purchase additional prototype cars for testing. Up to 500 vehicles may be purchased for further evaluation and limited fleet use.

Approximately 20 proposals were received when the program began in January, 1971, of which seven were accepted for more detailed study. Two candidate vehicles entered the testing phases of the program. One, a vehicle powered by an internal combustion engine with catalytic after treatment, has been rejected because of unacceptable emissions degradation performance with mileage accumulation. The second vehicle, powered by a hybrid system involving a rotary engine and electric storage battery combination, has completed the initial test phase and the data are currently undergoing analysis.

## Low Emission Vehicle Procurement Program

The 1970 Amendments to the Clean Air Act established Section 212 which provides for a Low Emission Vehicle Certification Board (LEVCB). The Board has the responsibility for certifying vehicles which EPA has determined to have emissions substantially lower than existing Federal standards. If certified, the vehicle qualifies for preferential purchase at increased cost by agencies of the Federal Government. The vehicle, to be certified, must meet all the requirements of some existing class of vehicles used in Federal service and to date no vehicle submitted has met these requirements. The three applications submitted since inception of the program in 1970 have all been electric storage battery powered vehicles which comply with the emissions requirements of Section 212, but do not meet the performance requirements of any current Federal procurement specification applying to existing classes of vehicles used by the various agencies.

Recognizing that there may be some applications in Federal service which electrically powered vehicles might serve, the LEVCB has conducted a survey of the major Federal agencies which utilize vehicles to determine whether such vehicles could be used. In addition, a detailed study has been made of the problems limiting the success of the Section 212 program which the LEVCB may use as a basis for recommendations for changes in this section of the Clean Air Act.

## MOBILE SOURCE RESEARCH AND DEVELOPMENT

### Research and Development on Automotive Emissions

The Alternative Automotive Power Systems (AAPS) Program was announced by the President in his February 1970 Message on Environment. At that time, there was concern in the Executive Office of the President that increasingly stringent exhaust emission standards for automobiles would be required during the decade of the 70's and that the conventional internal combustion engine might not be capable of being controlled to meet the expected low emissions levels required by the standards. In 1970 serious work to develop alternative power systems was not underway nor was such work planned by industry. Thus, the AAPS program was initiated with the goal of objectively evaluating alternative power systems for automobiles. It was intended that the program provide a basis for government decisions regarding the technological feasibility of new engine systems in meeting the standards. Within five years (by 1975) as part of the evaluation process and as announced by the President, the Federal government would demonstrate virtually pollution-free engines for automobiles. To accomodate this demonstration goal, the exhaust emission levels to be met were made equivalent to achievement of the Federal emissions standards originally planned for model year 1976.

The work of the AAPS program was formally initiated in July 1970. There were initially five types of candidate power systems in the AAPS program. These systems included: Rankine cycle systems, gas turbines, two types of hybrids (heat engine/battery and heat engine/fly wheel) and battery powered electric systems. It was planned that each system would be carefully studied, designed, component or system test data gathered on each; that the systems would be ranked on the basis of their potential for being practical, energy efficient systems which would be capable of meeting the original 1976

Federal emissions standards; and that the highest ranked systems concepts would be developed into prototype hardware appropriate for the demonstrations by 1975.* It was anticipated that other types of alternative systems could be brought into the program for evaluation as time went on. It was recognized from the beginning that only prototypes of these type systems could be demonstrated by 1975/76 and that none could be mass produced by that date. It was felt that if the needed technologies were successfully advanced in the program, and the systems demonstrated were practical and met the emissions standards and numerous road performance goals of the program, then the program would serve to catalyze industry to pick up these advances and produce their own versions (improved) of the systems which would be demonstrated.

The two versions of hybrid systems were judged to be not viable replacements for the conventional engine for several reasons, including their requirement for exhaust after-treatment, high degree of system complexity, and relatively high cost to produce. Continued work on the all electric system has been deferred because the most essential component of the system, the battery, requires a development program longer than the five-year commitment encompassed by the current program. Other government agencies continuing with the battery development work are the National Science Foundation, the Atomic Energy Commission, the National Aeronautics and Space Administration, the Department of Defense, and the Department of Transportation.

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*The original program plan called for demonstration of the new power systems in full size (4500 lb) passenger cars by 1975. In 1973 the program was reoriented to emphasize more the achievement of good fuel economy and, as part of this reorientation, the program plans were changed to provide a compact car (3500 lb) demonstration by 1976 rather than the original 1975 goal.

As noted earlier it was anticipated that other alternative systems might be brought into the program after the program had started. This was the case for the stratified charge versions of Otto cycle engines. In 1971 the AAPS program assisted in funding the continued development of open-chamber stratified charge engines through the U. S. Army Tank Automotive Command (ATAC) which had initiated work on these systems in the early 60's. The development of two versions (Ford PROCO and Texaco TCCS) proceeded to the point where in 1973 the TCCS was selected by the Army to proceed into a final development phase before production. At that time AAPS funding was terminated because the engine development had progressed to the point where different members of industry were continuing development of their own versions of this type of combustion process.

The current engine candidates in the program are the Rankine cycle system and the Gas Turbine. Combustion systems research and combustor component development on these systems had progressed sufficiently by 1973 to where tests of these components confirmed that the stringent emissions standards appeared achievable when installed in complete power systems. At that time the emphasis in the AAPS program changed to focus on improving the fuel economy of the best type systems.

Four versions of the Rankine cycle system have been under development since the program began in 1970. These systems included the steam/reciprocator, steam/turbine, organic/reciprocator and organic/turbine version. Early in 1974 the number of competing systems was reduced to the two which offered the most promise. These two are the steam/reciprocator which is the prime candidate and the organic/reciprocator which is the backup system. As of October 1974 only the steam/reciprocator remains in the program.

Unlike the work on the Rankine cycle system, the Gas Turbine activity has focused on problem-solving research and not on the development of a completely new version of engine. This approach is being used because in the past, industry has made serious efforts to develop automotive gas turbines and has invested considerable funds in this area. As a result, the problem-solving approach appears to be the most efficient use of Federal funds to properly evaluate the gas turbine for automobile application.

The problems of the gas turbine that are being attacked include: NOx reduction, development of low cost materials and manufacturing processes, and improvements in fuel economy. Teams of technical specialists from many industries and from the U. S. National Aeronautics and Space Administration currently are working on solutions to these problems for the regenerated free-turbine.

To ensure that the resulting solutions from the problem solving research on the turbine are practical, a test bed or baseline engine program is being conducted in parallel with a problem solving research activity. The baseline engine program is providing the automotive type turbine engines needed to demonstrate the hardware developed in the research program. In addition, the baseline engine program contractor, Chrysler Corporation, is conducting a similar problem solving research activity to that of the independent research contractors. Chrysler will update the turbine engine with all component improvements integrated into the system and will demonstrate the improved gas turbine engine sized for a compact car by 1976. In this process the current baseline of 180 hp is being redesigned by Chrysler to a 100 hp level to meet the compact car requirements.

The oil embargo in 1973 added emphasis on the need to improve energy efficiency in motor vehicles to effect a reduction in demand for petroleum. New projects dealing with energy efficiency include: feasibility studies relating to use of non-petroleum based fuels for automotive ground transportation, use of Rankine bottoming cycle on diesel trucks, use of turbo-compounding and new engine accessory drives.

## Research and Development on Aircraft Emissions

Studies have continued in support of the regulations which EPA has promulgated limiting the emissions of carbon monoxide, hydrocarbons, nitrogen oxides, and smoke in commercial and private aircraft. Current efforts are concentrated in the following areas:

1. Improvement of the precision of the emissions sampling and measurement techniques specified in the EPA regulations.
2. Assessment of progress by private industry and other government agencies in development of techniques for reducing emissions from turbine-powered aircraft.
3. Assessment of progress by private industry and other government agencies in development of techniques for reducing emissions from piston engine powered general aviation aircraft.

In conducting the above programs, maximum advantage is taken of on-going efforts by other Federal agencies active in the aircraft emissions area. These are principally the National Aeronautics and Space Administration, the United States Air Force, and the Federal Aviation Administration. In addition, the Department of Transportation's Climatic Impact Assessment Program is being closely followed in order to ascertain whether the EPA aircraft regulations already promulgated require modification to respond to upper atmosphere problems.

## III. THE DEVELOPMENT OF AIR QUALITY CRITERIA AND RECOMMENDED EMISSION CONTROL REQUIREMENTS

### NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

EPA has a continuing program for review of the existing criteria pollutant standards and for assessing the requirement for establishing new ambient air quality standards for other pollutants. Assessments completed in 1974 by EPA and independent groups do not indicate the need for new or revised standards.

A recent in depth review by the National Academy of Sciences (NAS)* concluded that there was no substantial basis, relative to health and welfare effects, for changing the standards. This assessment has been supported by research conducted through EPA's laboratory and community studies.

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* Air Quality and Automobile Emissions Control, A report by the Coordinating Committee on Air Quality Studies, National Academy of Sciences, National Academy of Engineering (4 Volumes) dated September 1, 1974. Prepared for the Committee on Public Works, U. S. Senate.

## NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS)

On May 3, 1974, the Agency issued clarifying amendments to the NESHAPS promulgated in April 1973. These amendments generally advised the public how the regulations were being interpreted in Agency enforcement actions.

On October 25, 1974, the Agency proposed amendments to the asbestos and mercury NESHAPS which, in addition to amending test methods and procedures, proposes to revise the scope of the regulations. For asbestos, it has been proposed that the manufacture of shotgun shells, manufacture of asphalt concrete, and asbestos waste disposal be added to the list of nine source categories covered by the regulations. Asbestos fabrication operations are excluded and changes have been proposed in the regulations concerning demolition and renovation. The October 25 proposal also includes the addition of sewage sludge incinerators as a source of mercury emissions regulated by the NESHAPS.

## NEW SOURCE PERFORMANCE STANDARDS (NSPS), SECTION 111- CLEAN AIR ACT

In 1974, the number of sources regulated by promulgated NSPS more than doubled, and an additional 12 NSPS were proposed with promulgation planned for early 1975.

Promulgated March 8, 1974, were NSPS for new asphalt concrete plants, catalytic cracking units in petroleum refineries, petroleum storage tanks, secondary lead smelters, secondary brass and bronze ingot plants, basic oxygen furnaces in iron and steel mills, and sewage sludge incinerators. The proposed standards, all issued during October 1974, were for primary copper, zinc and lead smelters, ferroalloy production facilities, five categories of sources in the phosphate fertilizer industry, primary aluminum plants, and coal preparation plants. Proposed and promulgated NSPS at the close of 1974 totaled 24, nearly five times the number of NSPS a year ago. Table I summarizes all 24 NSPS.

Only one of the new NSPS has been challenged; a petition for review of the asphalt concrete regulations was filed by the National Asphalt Paving Association. The final EPA response to a court remand on a 1971 NSPS petition for review (portland cement plants) was issued November 5, 1974. The use of visual opacity observations, a major issue in the remand, was supported by extensive field investigations.

Requirements concerning continuous emission monitoring and performance testing were proposed on September 11, 1974. Generally, the proposal established a procedure whereby continuous emission monitors are checked against the manual performance tests required of new sources. Performance specifications for acceptable monitors are included in the Regulations.

On October 7, 1974, the Agency proposed regulations to implement Section 111(d) of the Clean Air Act. Under Section 111(d) States are to submit plans for the control of non-criteria pollutants from existing sources after the Agency promulgates NSPS for the source category. The proposed regulations would require States to adopt emission standards which reflect best available retrofit technology, but States would be able to impose less stringent standards where special circumstances exist.

Amendments to the general provisions to the standards of performance were proposed on October 15. The amendments generally defined the Agency's interpretation of when the NSPS would be applied to modified sources. Under the Clean Air Act NSPS apply to existing sources when a modification has been made which increases atmospheric emissions. The basic policy stated in the proposed amendments would limit application of the NSPS to those situations wherein the modification required a significant capital expenditure.

## Table 5
### STATUS OF STANDARDS OF PERFORMANCE

| SOURCE | AFFECTED FACILITY | POLLUTANT | OPACITY REGULATION | PROMULGATION DATE | REMARKS |
|---|---|---|---|---|---|
| Steam Generators [>250 million Btu/hr] | Coal and oil fired boilers | Particulate | ✓ | 12/23/71 | Under remand. |
| | Coal and Oil fired boilers | $SO_x$ | | | |
| | Coal, oil, and gas-fired boilers | $NO_x$ | | | |
| Municipal Incinerators [>50 tons per day] | Incinerator | Particulate | ✓ | 12/23/71 | |
| Portland Cement Plants | Kiln, clinker cooler | Particulate | ✓ | 12/23/71 | Final Response Filed November 5, 1974 |
| Nitric Acid Plants | Process equipment | $NO_x$ | ✓ | 12/23/71 | |
| Sulfuric Acid Plants | Process equipment | $SO_x$ | | 12/23/71 | Under remand. |
| | | Acid Mist | ✓ | 12/23/71 | |
| Asphalt Concrete Plants | Process equipment | Particulate | ✓ | 3/8/74 | Undergoing judicial review. |
| Petroleum Refineries | Process gas combustion | $SO_x$ | | 3/8/74 | |
| | Catalytic regenerators | Particulate | ✓ | 3/8/74 | |
| | | CO | | 3/8/74 | |
| Petroleum Storage | Gasoline, crude oil, and distillate storage tanks >65,000 gallons capacity | Hydrocarbons | | 3/8/74 | |
| Secondary Lead Smelters and Refineries | Blast and reverberatory furnaces | Particulate | ✓ | 3/8/74 | |

Table 5 (Cont'd)

STATUS OF STANDARDS OF PERFORMANCE

| SOURCE | AFFECTED FACILITY | POLLUTANT | OPACITY REGULATION | PROMULGATION DATE | REMARKS |
|---|---|---|---|---|---|
| Phosphate Fertilizer Plant | Wet process phosphoric | Fluorides | | | Proposed 10/22/74. |
| | Superphosphoric acid | Fluorides | ✓ | | |
| | Diammonium phosphate | Fluorides | ✓ | | |
| | Triple superphosphate | Fluorides | ✓ | | |
| | Triple Superphosphate Storage | Fluorides | | | |
| Iron and Steel Mills | Electric arc furnaces | Particulate | ✓ | | Proposed 10/21/74. |
| Ferroalloy Production | Specific furnaces | Particulate<br>CO | ✓ | | Proposed 10/21/74. |
| Continuous Monitoring | | General Provisions | | | Proposed 9/11/74. |
| Section 111(d) Regulations | | General Provisions | | | Proposed 10/7/74. |
| Modification | | General Provisions | | | Proposed 10/15/74. |
| Revision to Hazardous Pollutant Regulations | | Asbestos and Mercury | | | Proposed 10/25/74. |

### Table 5 (cont'd)

### STATUS OF STANDARDS OF PERFORMANCE

| SOURCE | AFFECTED FACILITY | POLLUTANT | OPACITY REGULATION | PROMULGATION DATE | REMARKS |
|---|---|---|---|---|---|
| Secondary Brass and Bronze Refining Facilities | Reverberatory furnaces | Particulate | ✓ | 3/8/74 | |
| Iron and Steel Mills | Basic oxygen furnace | Particulate | ✓ | 3/8/74 | |
| Sewage Treatment Plants | Sludge incinerators | Particulate | ✓ | 3/8/74 | |
| Primary Copper Smelters | Roaster, smelting furnace, converter | $SO_x$ | ✓ | | Proposed 10/16/74. |
| Primary Zinc Smelters | Roaster | $SO_x$ | | | Proposed 10/16/74. |
| | Sintering machine | Particulate | ✓ | | |
| Primary Lead Smelters | Sintering machine, electric smelting furnace, converter | $SO_x$ | | | Proposed 10/16/74. |
| | Blast or reverberatory, furnace, sintering mach. | Particulate | ✓ | | |
| Primary Aluminum Reduction Plants | Pot lines | Fluorides | ✓ | | Proposed. 10/23/74. |
| | Anode Bake Plants | Fluorides | ✓ | | |
| Coal Cleaning Plants | Air Tables | Particulate | ✓ | | Proposed 10/24/74. |
| | Thermal dryers | Particulate | ✓ | | |

## HEALTH EFFECTS RESEARCH

The Community Health Effects Surveillance Studies (CHESS) program was initiated to provide data relating to human health effects to long and short-term exposure of population subgroups to $SO_x$, respirable particulates, $NO_x$, CO, and photochemical oxidants. The CHESS Studies have demonstrated the benefits from improved air quality with respect to the chronic respiratory disease experience of subjects who have moved to communities having cleaner air. Also, the studies have shown that children living for 3 or more years in communities having high levels of air pollution have more acute respiratory disease episodes than recent immigrants to the community.

Data obtained from the CHESS program indicate that adverse health effects are consistently associated with exposure to suspended sulfates, indeed, more so than to $SO_2$ or total suspended particulates. This information has initiated further study in the transport processes and control techniques for suspended sulfates.

Studies were initated to evaluate potential health effects of fuel and fuel additive emissions from internal combustion engines. As a result of this work it has been determined that the physiological availability of lead compounds from street dust is similar to that of other lead compounds. A study of various lead components associated with auto exhaust and paint has shown positive correlation between blood lead levels and lead levels in bone, kidney, liver and spleen.

Studies have been undertaken to investigate the effects of exposure to total emissions from mobile sources with and without oxidation catalysts, as well as to catalytic attrition products. Preliminary results underscore the benefits of reduced morbidity when carbon monoxide; nitrogen oxide and hydrocarbon emissions are reduced but a risk of increased morbidity from acid mist produced by the catalyst. Research and analysis are being conducted to evaluate these risk/benefit tradeoffs associated with automotive emissions.

# IV. THE STATUS OF ENFORCEMENT ACTIONS TAKEN PURSUANT TO THIS ACT

## STATIONARY SOURCE ENFORCEMENT

The Clean Air Act amendments of 1970 approached the task of protecting health and welfare from the effects of air pollution from stationary sources in three key sections:

- §110, State Implementation Plans (SIPs) - which provide for establishing State air pollution limitations designed to achieve health related (primary standards) and welfare related (secondary standards) air quality goals.
- §111, New Source Performance Standards (NSPS) - which require EPA to develop emission limitations for newly constructed or modified major emitters, based on best available control technology and cost; these standards are to be a major factor in the maintenance of acceptable air quality achieved under §110. After their promulgation, States are encouraged to assume responsibility for the enforcement of these standards.
- §112, National Emission Standards for Hazardous Air Pollutants (NESHAPS) - which require EPA to develop emission limitations for especially toxic pollutants for which air quality standards cannot be adequately established. As under §111, States may request delegation of these standards.

While the Act placed the primary responsibility for attainment and maintenance of air quality standards upon the States, EPA's enforcement authority was also greatly strengthened under the 1970 amendments. §114 of the Act authorizes EPA to make inspections, require reports and recordkeeping and require sources to sample their emissions in order to verify compliance with the emissions limitations established above. §113 of the Act authorized EPA to actively enforce against sources violating requirements established under sections 110, 111, 112, and 114 by issuing an order to comply or commencing civil or criminal action. In accordance with the intent of the Act, it is EPA's policy to defer to State enforcement where effective progress is being made. EPA enforcement actions to ensure compliance with emission limitations established under the State Implementation Plan are therefore undertaken to stimulate or assist State enforcement programs, and States are encouraged to request delegations of the enforcement of NESHAPS and NSPS. Much of EPA's stationary source air enforcement program to bolster State efforts is carried out through the provision of technical and legal assistance, provision of specialized skills or expertise, special contractual efforts, and control agency grants.

The effectiveness of EPA and State enforcement efforts under each of the above sections of the Act over the past year is addressed separately below.

## §110, State Implementation Plans (SIP)

The Act established a stringent timetable for EPA and States to abate air pollution. In accordance with this schedule, EPA promulgated ambient air quality standards on April 30, 1971, for six air pollutants: particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, photochemical oxidants, and hydrocarbons. Under the Act, the States then had just 9 months to develop comprehensive implementation plans (which included enforceable emission limitations) designed to achieve these ambient standards, and EPA was allotted 4 months for the review and approval or disapproval of these plans. These deadlines were substantively met when EPA approved most portions of the SIPs in May 1972. With a few notable exceptions (e.g., sulfur oxide emission limitations in the State of Ohio), all states now have fully enforceable emission limitations affecting stationary sources. The Act allows three years from the date of State plan approval for EPA and the State to reduce pollution levels to the health-related ambient air quality standards. Except for portions of 16 States, where an extension of up to 2 years has been granted for one or more pollutants, these primary ambient air quality standards are required to be met by July 1975.

State and Federal programs face an immense task in achieving compliance since there are estimated to be over 200,000 stationary sources subject to SIP emission standards. Of this number, however, approximately 20,000 are major emitters (i.e., facilities individually capable of emitting over 100 tons of a pollutant per year) which, as a class, produce about 85% of all air pollution emitted by stationary sources. Accordingly, EPA and State enforcement programs have focused on ensuring compliance by this class of emitters in order to have the greatest impact on pollution abatement. From approval of most SIPs in May 1972 until May 1973, EPA and the States had investigated only some 7,000 of these sources. By January of 1974, some 13,500 of these major emitters had been identified and investigated.

A vigorous program mounted over the last year to locate and inspect these sources has resulted in the identification of about 19,175 facilities, nearly all of the estimated 20,000 major sources.

As reported in the last review of EPA enforcement under the Clean Air Act, only 6 enforcement actions had been taken against stationary sources in 1972 (4 notices of violation, and 2 administrative orders). In 1973, the number of EPA enforcement actions increased to 112 (82 notices of violation and 30 enforcement orders), and in 1974 EPA took 271 enforcement actions (179 notices of violation and 92 enforcement orders or civil or criminal actions). A summary of these actions is contained in the Appendix. As shown in the Appendix, State action for many of these sources has been stimulated by EPA initiation of enforcement. The actions also represent the results of a major effort on the part of EPA to establish the compliance status of sources subject to SIP emission limitations. In 1972, only about 100 compliance investigations were made under the authority of §114 of the Act, in 1973 the number of field actions increased to 2,000 (including some 1,200 plant inspections, opacity observations, and emission tests, and 800 required reports), and in 1974 some 3,600 such investigations (comprising some 1700 field investigations and 1900required reports) were completed.

This increase in enforcement activity was mirrored by the State enforcement programs, resulting in a great increase in the number of major sources brought into compliance.

Of the 19,000 identified major sources mentioned above, a total of 13,585 (71%) now comply with applicable emission limits or are meeting compliance schedules; this has increased from some 7,890 known to comply a year ago. Of the 13,585 in compliance, 10,618 are in final compliance with all requirements, and 2,967 are meeting increments on their compliance schedule.

On the order of 6,500 major sources had yet to be identified or investigated at the beginning of 1974; as of December 1974, less than 1000 major sources are thought to remain outside State and EPA inventories, and 3,400 of the identified major sources are the targets of EPA and State investigations to complete determinations of compliance status. Nearly 2,200 major sources (11%) are known to violate emission limitations or compliance schedules at the present time - these sources are the subject of current EPA and State case development programs.

Despite this progress in SIP enforcement, several categories of major sources may not achieve compliance with emission standards within the time limits prescribed by the Act. Notable among these sources are coal-fired power plants, iron and steel manufacturing plants, smelters, and industrial/commercial boilers. Special efforts are now being implemented by EPA to ensure compliance by these classes of sources as quickly as possible.

Coal-fired power plants.-- Control of emissions from power plants is essential to the attainment of the health-related air quality standards for sulfur oxides in many areas of the U.S. As a class, coal-fired steam electric plants emit about 60% of the total sulfur oxides produced by all sources. During the summer of 1973, it became increasingly apparent to EPA that progress to meet applicable State-adopted sulfur oxide emission limitations by this sector of industry was severely lagging. New supplies of low-sulfur content coal, the favored approach to reducing sulfur oxide emissions, were becoming increasingly scarce and utilities were extremely reluctant to use flue gas desulfurization (FGD) systems (scrubbers) to remove sulfur oxides from the stack after high sulfur content coal has been burned. EPA held national public hearings in the fall of 1973 to review the status of power plant compliance with sulfur oxide emission limitations and to determine whether FGD offered an available control alternative to the use of cleaner fuels. On the basis of testimony by utilities, FGD vendors, and other authorities on the subject, the hearing panel concluded that the basic technological problems associated with FGD raised by the utilities had been solved or were within the scope of current engineering and that FGD could be applied at reasonable cost.

In light of these recommendations, a special enforcement program for power plants was implemented. As detailed in the Appendix, 31 notices of violation have been issued to power plants (6 in 1973, 25 in 1974), 14 enforcement orders have been issued, and 13 consent orders establishing firm schedules of compliance have been signed.

A measure of the effectiveness of EPA's power plant efforts is the rise of the use of flue gas desulfurization control devices. In 1974 the number of FGD installations in operation, under construction, or otherwise committed to has more than doubled--from 44 units at the time of the hearings to about 100 units by the end of 1974. These 100 units represent approximately 40 percent of the coal-fired capacity that will need flue gas desulfurization systems by the end of 1980. EPA estimates that approximately 90,000 megawatts of coal-fired generating capacity will need to install these systems by the end of 1980.

The number of units now on-line has doubled--from 10 to 20, and additional systems are scheduled for startup in January 1975.

Increasingly high reliability factors (in the 80 to 90 percent range) are being evidenced and several companies have purchased systems to treat sludge by-products from nonregenerable scrubber systems. It is anticipated that 12 more units will be operable by the end of 1975, and 12 more at the end of 1976, bringing the total number of on-line systems to 44 by the end of 1976. A few units are scheduled for startup later than 1977, and some startup dates are unknown because installation is tied to the startup dates of new plants, but the bulk of the 100 units committed to will be on-line by December 1977.

However, we will not see nationwide compliance by coal-fired power plants by mid-1975 deadlines contained in most SIPs. As of December 1974, only about half of the coal being used by utilities met SIP sulfur content limits. Of the remaining 50% of 1974 utility coal, about 12% was burned at noncomplying plants owned by utilities with firm plans to comply, about 16% was burned at plants having no known compliance plans, and about 22% was used at plants covered by SIPs that are under legal challenge or that are being revised.

In order to ensure that health-related ambient air quality standards for sulfur oxides are attained as quickly as possible, EPA has, over the last year, given enforcement priority to those noncomplying plants (about 90) having an impact upon these primary standards. Of these plants, 3 have achieved compliance, 23 are now subjects of state and EPA enforcement actions, and 20 are now on acceptable federal, state, or local compliance schedules. Unfortunately, enforcement against about half of these priority plants is stayed pending conclusion of litigation or is prevented by ongoing SIP revisions.

Iron and Steel Mills and Coke Plants.-- Iron and steel mills and associated coke plants represent one of the larger and more complex categories of problem sources in stationary source enforcement. There are about 200 of these sources in the U.S., they are large, and the processes that occur in these plants are diverse. In addition, the enforcement effort is made more complex by a number of SIP regulations that limit emissions of particulate matter from only certain portions of the coking cycle, such as charging, under-firing, etc.

About 70 major U.S. facilities are equipped with coke ovens, and the majority of these are out of compliance with SIP regulations. There are another 45 major non-coking iron and steel facilities which produce pig iron using blast furnaces and raw steel using open hearth or basic oxygen furnaces or a combination thereof. Nearly all of these facilities have at least one process that is out of compliance. EPA enforcement priorities in 1974 have concentrated on these 115 major sources of particulate matter. There are, in addition, some 85 iron and steel plants producing raw steel with electric furnaces that charge mostly scrap metal instead of pig iron. Although these sources have not yet received close enforcement scrutiny, EPA estimates that approximately 20% are out of compliance.

In 1974, EPA expanded its enforcement program to inspect and document violations occuring at iron and steel mills and coking facilities; this expanded program resulted in an increase in enforcement actions taken -- from 8 in 1973 to a total of 33 by December 1974.

During 1974, efforts were also directed toward identifying those state implementation plans containing deficient regulations or regulations that did not limit emissions from all aspects of the coking cycle. In addition, the Agency initiated a program to test and then determine the applicability and effectiveness of control technologies for coke oven emissions. Although much remains to be accomplished in bringing steel mills and coke plants into compliance, it is anticipated that most of these facilities will be inspected, and by mid-75 will be subjects of EPA enforcement actions leading to firm compliance schedules.

Primary Non-Ferrous Smelters. -- Most of the Agency's problems in assuring compliance by the Nation's 28 primary non-ferrous smelters have centered in the Western U. S., where 13 of these smelters are not subject to federally-enforceable regulations for the control of sulfur oxides. In May 1972, the SIPs for the States of Arizona, Idaho, Montana, Nevada, New Mexico, and Utah were disapproved insofar as they applied to these very large sources of particulates and sulfur oxides. Federal replacement regulations have not been promulgated since May 1972 due to controversies over the availability of controls and the possible use of intermittent control systems and tall stacks. However, resolutions to these problems were approached in late 1973 and EPA is now finalizing federal regulations for the control of $SO_x$ from primary non-ferrous smelters. Regulations that will soon be proposed require the application of the best available retrofit control technology, and, if necessary, allow the interim use of supplementary control systems (SCS) and tall stacks until adequate constant control techniques become available. Each smelter using SCS is further required to conduct a research and development program to hasten the development of such technology.

Six smelters in Eastern regions are in violation of an SIP-approved regulation; with few exceptions, State agencies are adequately responding to the problem. In one case, EPA has filed suit to enforce the regulation, and in another, enforcement is stayed by a §307 challenge to the SIP.

The national program for assuring compliance from primary non-ferrous smelters is making headway. Regulations for the control of sulfur oxides have been proposed for two smelters and promulgated for another. The additional regulations are in the final stages of development, and should be proposed in the near future. In nearly all cases, smelters are taking steps to comply with regulations, including several which are not yet subject to final regulations.

About half of the primary non-ferrous smelters are located in air quality control regions where statutory attainment dates have been extended to July 1977. No major obstacles are anticipated that might prevent achievement of final compliance by these sources by the mid-77 deadlines. Those subject to mid-75 deadlines are, for the most part, nearing compliance.

Industrial Boilers.-- There are about 3500 coal-fired industrial and commerical boilers in the United States. Control of these sources is especially needed in urban areas not yet meeting the primary ambient air quality standards for sulfur dioxide. Basic enforcement problems are presented by the large number of these sources and the difficulty in establishing reasonable and expeditious compliance schedules when the supply of low-sulfur fuels may be in question and the supply of FGD systems is limited. In selective enforcement actions, EPA issued 26 notices of violation to facilities having industrial boilers, resulting in the issuance of 11 orders to comply.

Summary. -- In summary, significant progress is being made in the enforcement of SIP emission standards. Most national average concentrations for the six criteria pollutants show a general, but distinct, downward trend from the 1960's into the 1970's, especially in those areas having the worst pollution problems. While many areas may be delayed in achieving the health-related air quality goals past dates mandated by the Act, the progress being made in enforcement of SIPs will ensure attainment as quickly as possible.

## §111. New Source Performance Standards (NSPS)

New source performance standards were first promulgated on December 23, 1971, for 5 categories of major emitters (steam electric power plants, municipal incinerators, nitric and sulfuric acid plants, and asphalt cement plants). A second group of NSPS covering an additional 7 source categories was promulgated on March 8, 1974 and NSPS for 5 more categories were proposed in October 1974. By June of 1974 over 100 detailed investigations were made by EPA of sources suspected of being subject to NSPS. Of this number, 28 sources were determined to be subject to the first set of NSPS; five of these are now operating in full compliance, and the remainder are still being built. Enforcement of provisions covering both groups of NSPS was initiated during the summer of 1974 by EPA. As of December 31, 1974, 104 sources have been found subject to these provisions (the three-fold increase of sources in the past six months reflecting the promulgation of the second group of standards). To date, all of these sources are under construction or have yet to be fully assessed for final compliance.

While relatively little enforcement activity has developed to date from the promulgation of these standards, additional promulgations of standards is expected to result in a great increase in enforcement. The importance of these standards as a means of maintaining the improving air quality will also increase in years to come.

## §112, National Emission Standards for Hazardous Air Pollutants (NESHAPS)

On April 6, 1973, EPA promulgated regulations limiting emissions from certain sources of three air pollutants deemed hazardous to human health under the Clean Air Act provisions establishing National Emission Standards for Hazardous Air Pollutants (NESHAPS). The pollutants were asbestos, beryllium, and mercury, and the regulations required that certain categories of sources of these pollutants be brought into compliance within 90 days, be shut down, or be placed on EPA-approved schedules bringing them into compliance by April 1975.

EPA determined that only 620 of 13,000 potential sources were actually covered by the regulations, and has since brought 500 sources into compliance; of 120 sources suspected or known to be in violation of NESHAPS requirements, 50 are completing increments of progress in EPA-approved schedules to achieve compliance by April 1975. EPA enforcement orders to comply have been issued to ten additional violating sources and evidence for additional enforcement actions is being developed.

NESHAPS provisions also cover two stationary, but temporary, sources of asbestos: spraying of asbestos insulation and demolition of asbestos-containing buildings. EPA estimates that at least 30,000 spraying and demolition operations occur each year. Because of the transitory nature of these sources, enforcement at the federal level is difficult; the controls can best be imposed at the State and local levels. Therefore, EPA is making every effort to delegate responsibility for these efforts to the States. While these provisions are still the responsibility of EPA, the agency's enforcement program has focused on the most recalcitrant violators. As detailed in the Appendix, EPA has issued 8 enforcement orders and initiated 7 criminal actions against transitory sources.

# MOBILE SOURCE ENFORCEMENT

Under various provisions of Title I and Title II of the Clean Air Act, the Mobile Source Enforcement Division has the responsibility for enforcement of motor vehicle emission standards for new and in-use vehicles, for enforcing transportation control plans where the states fail to do so, and for regulating fuels and fuel additives.

## NEW SOURCES ACTIVITIES

Under Section 206(c) of the Clean Air Act, the Mobile Source Enforcement Division is entrusted with enforcement of requirements for "new" motor vehicles or engines -i.e., motor vehicles or engines which have not yet been sold to the ultimate purchaser

Since January 1, 1974, the Mobile Source Enforcement Division has conducted 17 inspections of domestic and foreign motor vehicle manufacturer certification procedures. Such inspections include detailed audits of procedures and visual inspection of facilities and vehicles in order to determine whether manufacturers are and have been acting in compliance with the Clean Air Act and its regulations.

The Mobile Source Enforcement Division has also conducted a total of 10 vehicle manufacturer investigations since January 1, 1974, some of which arose from the inspections. This activity consists of a search of vehicle manufacturer records and documents and interrogation of individuals to determine whether violations of the Clean Air Act and its regulations have occurred. Issuance of orders for production of information pursuant to Section 208 of the Act frequently accompany such investigations, and such orders have recently been expanded to include requiring the manufacturer to develop emission test data where technical violations may be accompanied by effects on emission performance. Since January 1, 1974,38 § 208 letters have been issued by Mobile Source Enforcement.

Out of the 17 investigations, 1 case was referred to the Department of Justice for enforcement action. That referral, which included 2 violations by Volkswagen of America, has been prosecuted. A complaint against Volkswagen AG and Volkswagen of America for the unreported existence of emission control "defeat devices" on certain 1973 Volkswagens was settled by stipulation in the amount of $120,000.

## IN-USE SOURCES

The Mobile Source Enforcement Division is also responsible for enforcing provisions of the Clean Air Act relating to in-use motor vehicles. Such provisions relate to tampering, recall, warranty, and imports.

Tampering

Section 203(a)(3) makes it a prohibited act for any manufacturer or dealer knowingly to remove or render inoperative a vehicle's emission control system after sale of the vehicle to the ultimate purchaser. From January 1, 1974, to January 1, 1975, the Mobile Source Enforcement Division conducted approximately 15 investigations with the regional offices responding to many alleged violations of the tampering prohibition of the Clean Air Act. Five cases were referred to the Department of Justice for action. Since January 1, 1974, a total of four tampering cases have been successfully prosecuted. A prosecution against Haney Chevrolet, of Orlando, Florida, in February, 1974, resulted in a fine in the amount of $500. Other cases and penalties were Gowin Dodge, Milton, Florida for $2500, Haney Chevrolet of Larchmont, New York for $1,000 and Jim Wanger Chevrolet of Milwaukee, Wisconsin for $1,200. This represents the first tampering prosecution under the Clean Air Act.

Recall

Section 207(c) of the Clean Air Act authorizes EPA to order recall of vehicles if they do not conform to emission standards.

One recall under the Clean Air Act has been ordered since January 1, 1974. On March 6, 1974, EPA ordered Chrysler Corporation to recall 826,000 motor vehicles to correct defective temperature sensing devices. In addition, 282,863 vehicles have been voluntarily recalled by manufacturers to repair vehicles not conforming with standards.

The Chrysler CCEGR Recall Campaign, ordered by EPA on March 6, 1974, is a large scale campaign requiring a relatively low cost repair and has cost about $6 per car or a total of approximately $2.4 million to date. This is based on EPA's estimate that fixed costs in this campaign were approximately $1 million and parts and labor for each car fixed amounted to $3.50 per car (400.000 X 3.50 = $1,400,000).

The Agency estimates the fixed costs of an EPA ordered recall campaign (initial notification, overhead, provision for subsequent notification recordkeeping, etc.) to be in the range of $1-3 per car campaigned and expect that voluntary campaigns would be of similar or slightly lower costs due to greater flexibility available to the manufacturer in a voluntary campaign.

Since January, 1974, the Mobile Source Enforcement Division has conducted 29 investigations of possible recalls. MSED is currently conducting investigations involving General Motors, Ford, Chrysler, and Volkswagen of America for possible recalls.

## Warranties and Aftermarket Parts

The warranty provisions of the Clean Air Act are designed to help assure that manufacturers develop and produce vehicles that meet emission standards throughout their useful life.

the 207(a) production warranty provision of the Clean Air Act requires that the manufacturer warrant that the vehicle or engine meets applicable emission standards at the time of sale, and is free from defects which may cause the vehicle or engine to fail to comply with the emission standards.

The 207(b) performance warranty provision of the Clean Air Act requires that a manufacturer warrant vehicles and engines comply with emission standards when in actual use. EPA is working to develop these warranties into meaningful remedies for purchasers of nonconforming vehicles. In support of the warranty programs, and to protect against any resulting anti-competitive effects in the automobile aftermarket, EPA has endorsed a voluntary self-certification program for certain automotive aftermarket parts, and MSED is working toward its development.

## Imported Vehicles

Sections 203(a)(1) and 203(b)(2) gives the Mobile Source Enforcement Division the responsibility for enforcing compliance of imported motor vehicles with emission standards. In conjunction with the Bureau of Customs, the Mobile Source Enforcement Division has monitored importation of an estimated 3 million commercial and privately owned vehicles since January 1, 1974. Through that program, a total of 284 administrative orders to modify noncomplying vehicles have been issued as well as 72 orders to export nonconforming vehicles imported under bond. Thirty-nine bond forfeitures have been assessed through Customs for noncompliance with the regulations.

The Mobile Source Enforcement Division has conducted 46 investigations of alleged illegal importations. One case was referred to Justice Department for prosecution against the Grossman Motor Car Corporation of West Nyack, New York. On June 12, 1974, a civil penalty of $25,000 and a criminal penalty of $30,000 (remitted to $4,500) were assessed against the Corporation for the illegal importation of 14 motor vehicles.

## Transportation Control Plans

Under sections 110 and 113 of the Clean Air Act

(Title I) EPA has the authority to ensure enforcement of Transportation Control Plans. Mobile Source Enforcement Division coordinates the accompanying regional enforcement program. During the past year, since January 1, 1974, Section 113 notices of violation were issued to 390 employers in the Boston area for failure to submit employee parking space reduction plans, one Spokane parking lot operator for operating a parking facility in violation of a freeze in Spokane, Washington, 22 service station operators in the Denver area for failure to submit control plans pursuant to Stage I Vapor Recovery Regulations, and the State of New York for failure to meet a number of implementation milestones. In addition, 99 section 114 letters of inquiry have been sent.

## Fuels Enforcement

The Mobile Source Enforcement Division has responsibility for enforcing section 211(c)(1) of the Clean Air Act relating to the regulations of fuels and fuel additives. On January 10, 1973, EPA promulgated regulations requiring the general availability of unleaded gasoline by July 1, 1974 for use in 1975 and later model cars equipped with catalytic emission control systems.

The Mobile Source Enforcement Division has established a nationwide Fuels Enforcement Program for ensuring that affected retail outlets are in compliance with these regulations. This program entails sampling of the fuel at retail outlets by Regional EPA Field Inspectors, though the use of a mobile van test facility.

During the past year, beginning with the effective date of the lead-free fuel regulations on July 1, 1974, EPA has conducted 5,360 inspections of service stations to ensure compliance with the lead-free fuel regulations. EPA has detected 1895 minor violations of the lead-free fuel regulations and 66 violations for contamination of lead-free gasoline. There have been 796 warning letters and 97 complaints issued, 18 settlement conferences held, and 3 ($1750) penalties collected.

Sixty-six (66) cases of contaminated unleaded gasoline were detected during the first two quarters of Fiscal Year 1975. In each case both the retailer and the supplier of the gasoline (refiner and/or distributor) are deemed in violation. In those cases which have been settled, the supplier has usually been found to be liable for the contamination. The contamination most often occurs in that link of the distribution chain which connects the terminal or bulk plant to the retail outlet. Common causes of contamination include the retention of some leaded gasoline in the delivery truck or its manifolding which mixes and adulterates a subsequent batch of unleaded gasoline, or misdirected unloading of leaded gasoline into an unleaded underground storage tank.

During the same period of time, 1, 895 cases of minor violations were detected. However, because many of the stations in violation contained multiple violations, the number of stations out of compliance is estimated at 650. For the most part, the retailer is responsible for complying with these nozzle, sign and label provisions. Most of these cases are handled on an informal basis; a warning letter rather than a complaint is issued to the retailer notifying him of the nonconforming situation at his outlet. If the retailer remedies the situation within a stated grace period, the case is closed without the issuance of a complaint. Only when the retailer fails to bring the station into compliance in a timely manner is a complaint issued against the retailer assessing a civil penalty. As set out in Guidelines from Headquarters, the penalties are uniformly lower than those assessed against distributors and refiners.

## Table 6

## MOBILE SOURCE ENFORCEMENT ACTIONS

| TYPE OF SOURCE | INSPECTIONS INVESTIGATIONS | ADMINISTRATIVE ORDERS | REFERRAL TO DEPT. OF JUSTICE | PROSECUTED | FINE |
|---|---|---|---|---|---|
| NEW SOURCES |  |  |  |  |  |
| Automotive Manufacturers | 10 Inspections<br>17 Investigations | 36 | 1 | 1 | $ 120,000 |
| IN-USE SOURCES |  |  |  |  |  |
| Tampering | 15 | 0 | 5 | 4 | $ 5,200. |
| Recall | 29 | 1 | 0 |  |  |
| Imports | 46 | 395 | 1 | 1 | $ 29,500. |
| FUELS |  |  |  |  |  |
|  | 5360 |  |  | 3 | $1750. |
| TOTAL |  |  |  |  |  |
|  | 5477 | 432 | 7 | 6 | $ 154,700. |

## V. THE STATUS OF STATE IMPLEMENTATION PLAN APPROVALS, DISAPPROVALS, AND PROMULGATIONS, AND PROGRESS TOWARDS ATTAINMENT OF NATIONAL STANDARDS

On April 30, 1971, EPA promulgated National Ambient Air Quality Standards (NAAQS) for five pollutants--sulfur dioxide, particulate matter, carbon monoxide, photochemical oxidants, and nitrogen dioxide. Subsequent to that action, each of the 50 States, four U.S. territories, and the District of Columbia, were required to submit a State Implementation Plan (SIP) to EPA which described the procedures and control actions that would be taken to reduce existing ambient concentrations for each pollutant to levels at or below the national standards. For purposes of SIP development, the entire geographic area of the nation was divided by EPA, after consultation with State agency officials, into 247 Air Quality Control Regions (AQCR's). SIP's which demonstrated the attainment and maintenance of NAAQS were required to be submitted for each of the AQCR's and for each of the pollutants.

Each of the States submitted SIP's for EPA approval (or disapproval) as required under the Act. These plans were more or less complete, with the exception of 42 AQCR's which were granted an 18-month extension to develop SIP's for secondary standards for particulate matter or sulfur dioxide. Under the Clean Air Act, EPA has the authority to propose and promulgate regulations to overcome States' regulatory deficiencies. Table 7 shows the current status of the 55 SIP's with respect to the need for EPA promulgation and the degree to which these promulgations have been made.

Table 7 STATUS OF STATE IMPLEMENTATION PLANS, SUMMARY(a)

| | |
|---|---|
| SIP's approved through State submittal | 3 |
| SIP's submitted by States and requiring EPA promulgation | 52 |
| SIP's with all regulatory deficiencies corrected by EPA promulgation | 38 |
| SIP's with all regulatory deficiencies not yet corrected (finalized) by EPA promulgation | 14 |

(a) All plans are disapproved with respect to "significant deterioration" and "maintenance of the national standards."

While most parts of many SIP's have been approved, one or more elements of the SIP's was deficient, resulting in a small number of SIP's being totally approved.

The State and EPA control regulations were believed to be adequate at the time of SIP approval to reduce ambient levels to the national standards. While it is premature in many cases to determine if in fact the national standards will be attained by the implementation of these control plans, (primarily because numerous emission limiting regulations and compliance schedules do not require compliance until the 1975 time period), some general conclusions can be drawn.

## ATTAINMENT OF NATIONAL AMBIENT AIR QUALITY STANDARDS

### Sulfur Dioxide

With regards to sulfur dioxide, significant progress has been made in reducing ambient concentrations throughout the nation. Nationally, a 25% decrease in annual average $SO_2$ concentrations has been observed. For the most part, the AQCR's with air quality not yet meeting the national standards generally have emissions from large uncontrolled point sources, such as power plants. In most cases, it is believed that enforcement of existing regulations will be adequate to attain national sulfur dioxide standards.

### Particulate Matter

Some progress has been made in reducing particulate matter concentrations, but reductions are made more slowly for particulates than for $SO_2$. On a national average, a 15% decrease has been observed. However, two distinct problems have been noted which may affect the attainment of the national particulate matter standards. These problems include the impact of fugitive or windblown dust on air quality, particularly in the West where windblown dust from farms, unpaved roads, and construction sites may cause high ambient concentrations. The second particulate problem involves the high background concentrations in many urban areas. It is believed that numerous miscellaneous sources contribute to high background concentrations such that the attainment of national standards may be difficult without the application of new and long range control techniques. Background sources include: tire particles, pollen, vegetative matter, sand and salt particles from snow control, windblown dust from exposed surfaces, reentrainment of street dust caused by wind and traffic flow, as well as secondary particulate formation in the atmosphere from the conversion of gaseous pollutant emissions by complex atmospheric transformations.

Preliminary evaluations in major problem cities have indicated that the measures necessary to attain national standards for particulate matter would include: conversion to gaseous fuels; extremely stringent emission limitations; elimination of small incinerators; extremely low sulfur content fuels; elimination of additives such as lead in fuels; comprehensive fugitive dust control; and tight control of hydrocarbons (to reduce photochemical aerosols). Replanning of future growth and development would also be involved in at least some areas.

## Carbon Monoxide and Photochemical Oxidants

The attainment of national standards for photochemical oxidants and carbon monoxide in major cities is directly associated with control of transportation sources. Twenty-seven cities have been determined to need a transportation control plan (TCP) to meet the oxidant standard, while TCP's for carbon monoxide are needed in 26 AQCR's. TCP's may require such measures as traffic flow improvements, mass transit improvements, car pool locator services, or, in extreme cases, gasoline limitations and selective vehicle exclusion from downtown areas. Such measures are planned to reduce the emission of photochemical oxidant precursors such as unburned hydrocarbons and nitrogen oxides. Since these measures would have major social and economic impact, the Agency has suggested to Congress an amendment of the Clean Air Act that would allow the attainment date for ambient air quality standards for these pollutants to be extended thereby eliminating the need for rapid application of control actions that would have serious adverse social or economic effects.

The oxidant attainment problem is further complicated by the fact that recent measurements of oxidant levels in rural areas have shown that national standards are exceeded regularly, in some cases more than 20% of the time. Though it is known that natural emissions from such sources as coniferous forests can cause the formation of photochemical oxidants, data from remote ambient air monitoring sites, when correlated with meteorological data, indicate that oxidants are advected into these remote areas from large metropolitan areas that may be hundreds of miles distant. Additionally, east of the Mississippi River, where large cities are in close proximity, research data show that oxidants in remote areas may come from different source cities depending on wind direction. Further research is being done on this problem to identify the source of oxidants in remote areas and to determine if the greater distances between cities in the western part of the country decreases the oxidant levels in remote areas.

### Nitrogen Dioxide

An issue related to the attainment of national standards for nitrogen dioxide was the discovery, in 1973, that the routine ambient sampling method for the pollutant was faulty. The method generally indicated higher than actual ambient levels of nitrogen dioxide. Because of this finding, the Agency proposed to reclassify 43 of the 47 AQCR's from Priority I to Priority III. This action was deemed appropriate since new sampling methods did not indicate an $NO_2$ problem throughout the nation as had the original method.

On May 8, 1973, EPA finalized in the Federal Register the reclassification of 42 of the 47 Priority I AQCR's to Priority III. Five AQCR's will remain Priority I, i.e., where air quality levels are near or above the national standards. These AQCR's include Los Angeles, Chicago, Baltimore, Salt Lake City, and New York-New Jersey-Connecticut. Additionally, a limited amount of air quality data from the Denver AQCR (Priority III) suggested that this AQCR may need to be reclassified Priority I. Additional data are being collected by the Agency in these areas.

In those AQCR's which were reclassified Priority III and where the States had previously adopted emission regulations calling for control of $NO_x$ from stationary sources, EPA will favorably consider States' requests for plan revisions that would rescind such regulations.

## ISSUES AFFECTING DEVELOPMENT AND IMPLEMENTATION OF STATE IMPLEMENTATION PLANS

### Maintenance of National Ambient Air Quality Standards

As directed by a 1973 court decision, EPA reviewed its initial approvals and disapprovals of State implementation plans regarding the maintenance of NAAQS. The review indicated that no plans adequately provided for the continued maintenance of national standards for a significant time beyond 1975-77. Consequently, EPA promulgated in the Federal Register on June 18, 1973, requirements that the implementation plans provide for both indirect source review and continued long-term maintenance of the national air quality standards. The regulations require in part that SIP's identify areas that may, as a consequence of current air quality and/or the projected growth rate of the areas, have the potential for exceeding any national air quality standard within the subsequent 10-year period. EPA is to publish, based upon the information submitted by the State, a list of potential problem areas. Each State is required to submit a detailed analysis of the impact on air quality of projected growth in each potential problem area designated by the Administrator. Where the analysis indicates that an area will not maintain the national standards, once attained, for the following 10 years, the State must also submit a plan containing measures to ensure the maintenance of the NAAQS during the ensuing 10-year period. Furthermore, to ensure the continued maintenance of the national standards, States must perform the area identification-analysis-plan development process at least every 5 years.

During 1974, EPA published guidance to the States concerning the process of problem area identification, analysis, and plan development. Additional guidance will be published in early 1975. EPA proposed a list of potential problem areas in the Federal Register on July 10 and August 12, 1974. A total of 188 areas for at least one pollutant were proposed. Of these, 167 were for particulate matter, 56 for sulfur dioxide, 29 for carbon monoxide, 54 for photochemical oxidants, and 9 for nitrogen dioxide. The final area identifications are scheduled to be published in early 1975. The problem area analyses and plans are scheduled for submission to EPA later in 1975. If EPA determines that a potential problem area will not attain a primary national ambient air quality standard by the attainment date, EPA will issue a notice to revise the implementation plan for both attainment and maintenance. In this case, the maintenance plan would not necessarily be due in 1975, but would be due on the date stated in the notice to revise the implementation plan. Detailed requirements for preparing, adopting, and submitting air quality maintenance plans are scheduled for promulgation in mid-1975.

## Prevention of Significant Deterioration of Air Quality

On May 30, 1972, as a result of a suit filed by the Sierra Club, EPA was ordered by the District Court of the District of Columbia to disapprove all SIP's which do "not prevent significant deterioration of air quality" in currently clean areas and to promulgate new regulations which would prevent significant deterioration. The District Court order was appealed to the Court of Appeals where it was affirmed, and subsequently to the Supreme Court, where it was affirmed by a tie vote

(June, 1973). As a result of the initial court action, all SIP's were disapproved on Nov. 9, 1972, to the extent that they did not explicitly "prevent significant deterioration."

In the absence of firm judicial or legislative guidance as to just what constitutes significant deterioration and what are acceptable means to prevent such deterioration, EPA solicited widespread public comment. In order to establish the conceptual issues and assist in their resolution, four alternative plans were proposed in the Federal Register of July 16, 1973. The analysis of considerable public comment together with several contract studies and numerous interfaces with governmental agencies at all levels (all of which extended well into 1974) suggested that an allowable air quality increment concept was preferable.

In response to a timetable for court compliance established in mid-1974, EPA reproposed the favored air quality classification plan for procedural and technical comment on August 27, 1974. The results of the 30 day public comments were considered and further multi-agency review was undertaken. Some changes were made and the area classification plan was promulgated on November 27, 1974. The regulations as promulgated would affect all new sources of 18 major types commencing construction after June 1, 1975. However, both the Sierra Club and Dayton Power and Light have petitioned for a court to review the details of EPA's promulgation.

EPA's activities on significant deterioration in 1974 also included the March 22 transmittal of a proposed amendment to the Clean Air Act which would eliminate any requirements to prevent significant deterioration of air quality. Although EPA did not support this proposal, the Agency believes that the significant deterioration issue should be examined by th Congress. Because of the potential for further litigation, the importance of this issue to our environment and our energy problems, and the potential impact of EPA's regulations on State and local land use responsibilities, EPA has encouraged Congress to explore all alternatives for dealing with the significant deterioration issue.

## Supplementary Control Systems

EPA proposed regulations on September 14, 1973, for the use of Supplementary Control Systems (SCS) and requested public comment. This proposal depicted SCS as a temporary measure applicable only to sulfur oxide emissions from isolated non-ferrous smelters and coal-fired power plants, where the sole alternatives are permanent curtailment of production, closing of the plants, or delays in attainment of the standards. The essence of SCS is to allow the pollution source, subject to certain restraints, to cut back or modify its operation as necessary to permit adequate dispersion of air pollutants and thus avoid air concentrations in excess of national standards. However, constant emission limitation is the preferred strategy for attaining and maintaining the standards in the long term. SCS is acceptable only as a temporary measure where its use is necessary to augment constant emission limitation techniques as determined on a case-by-case basis, and only in circumstances wherein SCS can be expected to exhibit a high degree of reliability and enforceability and where the emission sources can be readily and unequivocally identified.

EPA is currently proceeding with the development of control plans for all affected non-ferrous smelters to correct the currently deficient State plan and to satisfy the 18-month extension for submittal of a plan for attaining and maintaining the secondary sulfur dioxide standard. To date, EPA has proposed regulations allowing the use of SCS at two smelters located in Idaho and Nevada. These regulations require the installation of emission control equipment to the extent technically feasible and further state that SCS may be employed only if certain conditions outlined in the regulations are met, and its use is needed to achieve national standards. Other proposed regulations and the finalizing of the two proposals can be expected in the near future.

A similar concept is being developed for application to specific coal fired power plants which will alleviate some of the problems created by the current deficit in low sulfur fuels as well as the extensive time required to retrofit flue gas desulfurization systems on existing facilities.

## Indirect Sources

In response to a court order requiring EPA and the States to take further measures to insure maintenance of the National Ambient Air Quality Standards, EPA issued regulations requiring States to develop procedures to assess the air quality impact of new facilities, such as shopping centers and sports arenas, which could generate significant auto traffic, i.e., indirect sources.

Approximately seventeen States and territories have submitted such provisions of which EPA has approved six. Indirect sources located in the remaining 49 States or territories are subject to an EPA regulation promulgated on July 9, 1974, following receipt of public comments pertaining to a February 25, 1974 proposal.

On December 30, 1974, EPA suspended the effective date of the Federally promulgated provisions from January 1, 1975, to at least July 1, 1975. Thus, the Federal regulations will not be effective for facilities that commence construction prior to July 1, 1975 and perhaps later.

## Tall Stacks

EPA proposed regulations on September 14, 1973, limiting the use of stacks taller than that consistent with "good engineering practice" as a control strategy measure except as part of an approved supplementary control system. This general concept was confirmed on February 8, 1974, by a Court of Appeals opinion which stated that dispersion techniques could not be employed as a substitute for available emission controls.

Final regulations have not yet been promulgated to formally implement this policy due to the difficulty in defining "good engineering practice stack height" and "available control measures" applicable to all sources on a nationwide basis. Extensive consultations and analyses have been conducted, and regulations are expected to be published in 1975.

## Clean Fuels Shortage

Because of a known shortage of clean fuels (low sulfur fuels), the Agency developed the Clean Fuels policy in November 1972. Under this policy, States were (and still are) encouraged to revise their adopted emission regulations to permit the continued burning of any fuel from established sources, provided that primary air quality standards are not violated. This action reduces the demand for the more scarce low sulfur fuels in those locations where the primary standards are already being met, thereby increasing their availability to other areas where severe environmental problems exist.

This policy relies on cooperative efforts by EPA and State environmental agencies to extend compliance timetables for secondary standards or to revise emission regulations where primary standards would not be jeopardized. This program has thus far resulted in 42 million tons of coal being made legally acceptable through revisions in the sulfur regulations of SIPs. EPA expects that an addition 70 million tons will be realized by July 1, 1975.

The three procedures by which this policy are being realized are:

1. the revision of sulfur emission regulations in the applicable SIPs to permit the burning of "air quality acceptable" coal,
2. the granting to applicable utilities variances permitting them to continue burning their present quality coal, and
3. the attainment of the secondary $SO_2$ standard (i.e., to protect for welfare effects) at a reasonable date.

To overcome any sudden shortages of acceptable clean fuels due to strikes, embargo, etc., the Agency established in October 1974 procedures for the processing of variance requests (permitting the use of high sulfur fuels) for all fuel types and consumption sources. Any variance would be considered an SIP revision, therefore, requiring approval by the Administrator. The expedited procedures are designed to assure expedited action on the requests, while protecting the public health and welfare.

## Energy Supply and Environmental Coordination Act

During 1974, the Agency became further involved with the energy situation, primarily as directed by Section 4 of the Energy Supply and Environmental Coordination Act (ESECA). The Act requires EPA to review each SIP with respect to fuel-burning stationary sources, and to determine if revisions can be made which would alleviate the fuels shortage without interfering with attainment of any NAAQS or otherwise adversely affecting public health. Further, the Act requires the Agency to report to the States on the SIP review findings.

Although the ESECA is related to the "Clean Fuels Policy" it is larger in scope, and therefore requires a larger coordination effort with the responsible State agencies. The review of SIP's will principally address total suspended particulate and sulfur dioxide emissions relative to the achievement of both primary and secondary standards and will focus on emissions from power plants, very large industrial sources, and area sources. Approximately twenty SIP's were reviewed in 1974 and the remaining SIP reviews are scheduled to be completed by early 1975.

### In-Stack Emission Monitoring for Existing Sources

When SIP's were first developed, it was the Agency's position that continuous in-stack emission monitoring systems were not sufficiently reliable to warrant their inclusion as part of the SIP requirements. At that time, States were required to have legal authority to require such monitoring but were not required to implement that authority. Since then, the performance and reliability of these monitors has improved such that the Agency has now defined realistic minimum performance specifications for continuous monitors for certain source categories.

On September 11, 1974, the Agency proposed regulations to require continuous monitoring of emissions from the following source categories:

1. Specified fuel-fired steam generators of more than 250 million BTU per hour heat input (particulates/opacity, sulfur dioxide, nitrogen oxides, and oxygen);
2. Nitric acid plants (nitrogen dioxide);
3. Sulfuric acid plants (sulfur dioxide); and
4. Petroleum refineries' fluid catalytic cracking unit catalyst regenerators (particulates/opacity).

The source categories were chosen to coincide with the development of New Source Performance Standards (NSPS) since the NSPS are directed toward the most significant stationary sources and more information on the performance of continuous monitoring equipment is available for these source categories.

## Extensions for Developing and Implementing SIPs

The Clean Air Act provides for extensions of up to 2 years beyond the 1975 goal for attainment of primary National Ambient Air Quality Standards in those AQCR's where needed technology or other alternatives either are not available or will not be available soon enough to attain the primary standards. At present, twenty-eight AQCR's in sixteen States have been granted extensions for attainment of primary standards. The majority of these extensions have been granted in the latter part of 1973 primarily for those Regions requiring transportation control plans. Therefore, these extensions mainly affect the attainment of the carbon monoxide and photochemical oxidant standards. In addition, many States containing non-ferrous smelters have been granted extensions for attainment of the sulfur dioxide standards. In fourteen of the sixteen States granted extensions, EPA is required to promulgate regulations and the extension was provided as part of EPA's control strategy.

The Clean Air Act also provides for 18-month extensions for submitting plans for attaining secondary standards. On May 31, 1972, EPA granted 18-month extensions to 24 States involving 42 AQCR's to prepare control strategies for the criteria pollutants for which secondary standards have been set, i.e., particulate matter and sulfur dioxide. Thirteen States were required to submit particulate matter control plans by July 31, 1973. Of these, plans for eight States, covering 16 AQCR's, have been submitted to EPA. Because of the announcement on May 12, 1973, that $SO_2$ secondary standards might be revised, States had until January 30, 1974, to submit their $SO_2$ control strategies. Only three of the required twelve States have submitted a plan for the attainment and maintenance of the secondary $SO_2$ standard. The remaining plans for particulate matter and sulfur dioxide are under development by EPA. This includes specific regulations for control of sulfur dioxide emissions from non-ferrous smelters in six States (Nevada, New Mexico, Montana, Utah, Arizona, and Idaho) where extensions were not requested by the State but were provided by EPA.

## Court Actions on Variances

As a result of suits filed by the Natural Resources Defense Council (NRDC), the First, Second and Eighth Circuit Courts have held that source compliance dates could be deferred through the mechanism of a State-issued and EPA-approved variance or enforcement order but only up to the attainment date for meeting the primary ambient air quality standards.

In most instances, the date for meeting the primary standards is July 31, 1975. However, in some air quality control regions (AQCR's), primary standard attainment dates have been deferred up to two years through extensions granted under authority of §110(e) of the Act.

When the same issue was brought before the Fifth Circuit Court, this Court held that §110(f) of the Act is the exclusive means of postponing a compliance date even where the postponement does not go beyond the date for meeting the primary standards. The Agency believes that compliance date deferrals which do not go beyond applicable attainment dates should be treated as plan revisions, and should not be subject to the procedures of §110(f). Upon request by EPA, the Supreme Court stayed the Fifth Circuit's decision until it completes a review of the decision. Although final Agency action must await the outcome of this review, the proposed regulations for the six States within the Fifth Circuit jurisdiction are those the Agency intends to promulgate should the Supreme Court reverse the Fifth Circuit's decision.

From a technical standpoint, the opinions of the three circuit courts referred to above can be treated as applying only to those States which are within the jurisdiction of these courts. However, when three appellate courts uniformly resolve an issue which is common to every State, the decisions of the courts constitute strongly persuasive guidance for Agency action in all States. Therefore, on September 26, 1974, EPA published disapprovals for all States having postponement authority inconsistent with the terms of 40 CFR Part 51 and proposed substitute regulations for those disapproved plans.

## Review of SIPs for Reasonableness

Three separate court cases, involving challenges of the reasonableness of regulations contained in SIP's approved by EPA, resulted in the ruling that EPA must consider technical feasibility and economic practicality when approving SIP regulations. In the future, EPA policy will be to consider availability of technology, economic practicality, vagueness of definitions or test methods, and adequacy of compliance time in determining the enforceability and approvability of SIP regulations.

Other court cases have stated that EPA has the duty to disapprove State statutes and regulations which are submitted by a State as part of an SIP, but which fail to meet Clean Air Act requirements or which have no relationship to the attainment of the NAAQS. The Courts pointed out that if there were a class of regulations or laws submitted by the States which EPA took no action to disapprove, the result would be substantial confusion, unnecessary litigation, and a hampering of EPA's enforcement efforts. Because it is critical that the SIP as finally approved sets forth precisely what is required, it will be EPA's policy to specifically identify those measures submitted by a State which are related to attainment of the National ambient air quality standards and are therefore part of an approved implementation plan enforceable by EPA.

## VI. STATUS OF AIR MONITORING AND TRENDS IN AIR QUALITY

The State air pollution control agencies have been delegated the responsibility to install adequate air monitoring networks for criteria pollutants (those for which air quality standards have been set), as part of the State Implementation Plan (SIP) process.

EPA bases its assessments of national air quality to a major extent on the data submitted from these networks. The States submit their data to EPA's data storage and retrieval system. Summaries are then compiled of both the status of air quality with respect to Federal standards and the current scope of the composite national monitoring effort. In addition, companion computer files of data on point source and area emissions, plus meteorological data afford researchers within EPA and outside a sophisticated tool for investigating these complex influences on air quality. As of mid-1974, EPA's data bank contained information from over 6000 air monitors, and emission data on some 77,700 point sources and 3,300 (counties) area sources.

Before the formal status of compliance with a standard can be conferred on an Air Quality Control Region (AQCR), a reasonable history of data (at least one year) must be compiled from a representative network of monitors. A single station, reporting two values or an annual mean over a standard, is sufficient to document a violation; compliance must usually be demonstrated by more extensive evidence from a multiple-station network. The target date for completing these networks was, in most cases, July 1974. Table 8 summarizes the progress made by the states through 1973 in completing the networks obligated in their SIP's. The picture of the nation's air quality status with respect to standards remains partially incomplete to the extent that some areas were as yet unmonitored or incompletely monitored when these summaries were prepared.

The number of AQCR's reporting violations of standards is summarized in Tables 9 through 12.

Table 9, for suspended particulate matter, shows the number of AQCR's in each Priority Classification (I = substantial problem, II = moderate problem, III = minor problem). The second column shows the number of AQCR's reporting at least a bare minimum of analyzable data, namely 75% of the scheduled measurements for at least one quarter from one or more stations. (The differences from the Priority Class totals in the first column are the numbers of AQCR's reporting no usable data for 1973, as of June 1974). The next column shows the number of reporting stations within an AQCR that violated the 24-hour particulate standard (a primary or health related standard). The next column shows the number of AQCRs that have reported data for a full year from one or more stations in 1973, thus affording at least a tentative appraisal of the annual (primary) particulate standard. The final column shows how many of these AQCRs reported one or more stations violating the annual standard for particulates. As indicated above, the complementary group of AQCR's whose reported data include no violations will not be conferred the status of compliance until sufficient data have been reported, subsequent to the network completion date of July 1974, to appraise the adequacy of each AQCR's network coverage.

The diagrams at the bottom of Table 9 portray the distribution of the AQCR's in each Priority Class above and below the particulate standards. This analysis is based on data from stations in AQCR's reporting the highest second maximum daily value or highest annual mean.

Table 10 presents a similar summary of sulfur dioxide ($SO_2$) data for 1973.

Tables 11 and 12 summarize AQCR status for carbon monoxide (CO) and ozone/oxidants ($O_x$), respectively. Note that, for these two pollutants, there are only Priority Classes I and III, and that the Priority III AQCR's are not required to monitor for these two pollutants. However, a number of states have elected to install monitors in some Priority III AQCR's and many of these stations are recording values exceeding the CO and oxidant standards.

If a comparison were to be made with these corresponding tables in last year's report, it would appear that the number of AQCR's violating standards for each pollutant had increased this year. However, these AQCR totals are not yet a reliable measure of changes in air quality because the coverage of monitoring networks is still expanding and improving. More stations reported data in 1973 than in 1972 (see Table 13); still more can be expected when the 1974 summaries are complete. It can also be expected that some of these additional stations may reveal additional violations in areas not previously monitored.

To discuss trends, a selected group of stations consistently reporting data over a period of years must be examined. That analysis is discussed in the next section.

## AIR QUALITY TRENDS: 1970-1973

All the data used in this analysis are from the National Aerometric Data Bank which is comprised of State and local data submitted to EPA along with data from the Federal networks. National and regional trends are examined for total suspended particulate (TSP) and sulfur dioxide ($SO_2$), while trends in specific geographical areas are examined for oxidant ($O_x$) and carbon monoxide (CO).

In order to be selected, a site had to have valid data for a year for TSP and $SO_2$, at least a valid quarter per year for CO and at least a valid third quarter per year(summer season) for $O_x$. For TSP and $SO_2$ non-continuous sampling instruments, a valid year of data is defined as a year of data with 4 valid quarters, where a valid quarter must have a minimum of five samples. If no samples are collected in one month, neither of the other two months in that quarter may have less than two samples reported. For $O_x$, CO and $SO_2$ continuous sampling instruments, both a valid quarter and valid year must have at least 75 percent of the total number of possible observations. Finally, to be included in this analysis a site had to meet these criteria in either 1970 or 1971 and 1972 or 1973. There are 984 sites meeting the requirements for TSP, 213 for $SO_2$, 66 for CO and 28 for $O_x$. The reason for the extremely limited data base for CO and $O_x$ is the fact that many States have not had monitoring networks in operation for these pollutants until this year.

For purposes of making regional comparisons in TSP and $SO_2$ the nation was divided into five geographical areas: Northeast, South, North Central, Midwest and West. In terms of EPA Regions, the Northeast consists of EPA Regions I, II and III, the South is EPA Region IV, the North Central is EPA Region V, the Midwest consists of EPA Regions VI, VII and VIII and the west consists of EPA Regions IX and X.

## National and Regional Trends in Total Suspended Particulates

As demonstrated in Figure 1, the trend in TSP is downward for the national composite of all stations and in each of the geographical areas examined during the period 1970 to 1973. The decreasing trend is also evident when the 1970-1971 time period is compared with the 1972-1973 time period. Using the averages for these two time periods, it was found that 45% of the sites exceeded the primary annual mean standard in 1970-1971 compared with 32% in 1972-1973. This general improvement was also reflected in a 14% decline (from 77.9 ug/m$^3$ to 66.7 ug/m$^3$) in the national composite average during this time period. Interestingly enough, the composite average of the second highest values showed a 15% decline (from 202.3 ug/m$^3$ to 171.1 ug/m$^3$) in this same period which is quite comparable with the trend in average levels. Of course, for a specific site the percent decline in annual average level may not be as closely matched by a corresponding decrease in the peak value because the latter is more subject to temporary influences of atypical meteorology and emissions. There were 35 background sites used in the trend analysis, and these showed a slight decline due primarily to decreases in the Midwest.

## National and Regional Trends in Sulfur Dioxide

As with TSP, the predominate $SO_2$ trend is downward in the nation and in the geographical areas during the period 1970-1973 (Figure 2). These low levels of $SO_2$ generally result from the success of control measures for $SO_2$, regulations on the sulfur content of fuels, strong enforcement practices, and fuel switching to cleaner fuels. In contrasting the 1970-1971 period with the 1972-1973 period, the composite average shows a 25% decline (from 36.8 ug/m$^3$ to 27.5 ug/m$^3$, while the composite average of the peak values shows a 26% decline (from 175.6 ug/m$^3$ to 130.3 ug/m$^3$). Therefore, as for TSP, there is good agreement between the trends in composite averages and composite peak values. Only 10 background sites satisfied the validity criteria and these showed no predominant pattern.

## Trends in Oxidant

Most of the sites measuring oxidant which were able to meet our minimum data requirement are located in California. Essentially three areas were examined: Coastal Los Angeles, Noncoastal Los Angeles and the San Francisco Bay Area. Figure 3 presents the yearly trend in the composite average of the second high one hour oxidant values. The Coastal Los Angeles sites were the only sites which showed a sharp increase in the composite average of the second high value. The California Air Resources Board attributes this to adverse meteorological conditions in 1973.

The general improvement seen in the Noncoastal Los Angeles area, the San Francisco Bay Area and the Coastal Los Angeles area prior to 1973 can be explained in part by the reduction in total hydrocarbon emissions.

## Trends in Carbon Monoxide

Carbon monoxide trends are presented for four groupings: Los Angeles, New Jersey, Washington State and U. S. Remainder. As can be seen in Figure 4, the percent of values above the eight hour standard has generally declined in each of the groupings. The progress seen in the reduction in the percent of values above the eight hour standard can be attributed in part to the success of the Federal Motor Vehicle Emissions Control Program.

## Monitoring Implications of the Energy Supply and Environmental Coordination Act (ESECA)

Fossil fuel fired electric generating plants and other major fossil fuel users are being encouraged, where feasible to convert from oil or gas to coal. Adaptability of the equipment is, of course, an essential element of this feasibility. The Act provides that air quality in the area shall also be a guiding determinant of whether the fuel conversion should be made, and if so, then the nature of the emission control equipment that may be required. EPA is considering the possibility of requiring the owners or operators of those facilities that are granted suspensions or compliance extensions to install sulfur dioxide monitors around such facilities and to report the resulting data to EPA. These data would supplement the state and local monitoring network data in EPA's evaluations of AQCR compliance, progress toward compliance, or potential deterioration of air quality.

## MONITORING STRATEGY AND METHODS

In addition to the supplemental monitoring to be required of specific point sources, under ESECA, EPA is evaluating modifications to the recommended monitoring strategy employed by state and local agency networks. Growing experience in interpreting the existing data, plus concerns over newly emerging aspects of the nation's air pollution picture recommend more comprehensive monitoring in three principal categories:

1. AQCR's classed Priority III for CO and oxidants. Originally, an AQCR that was classed Priority III for one of these pollutants was not required to monitor for that pollutant. As remarked in a previous section, some states have elected to place CO and/or oxidant monitors in some Priority III AQCR's and a surprising number of these monitors are recording violations. The Environmental Protection Agency is recommending that urbanized areas with a population greater than 250,000 in AQCRs that are Priority III for one or both of these pollutants install at least two monitors for one or both pollutants.

2. In AQCR's where discrete sample monitors (hi-vols and 24-hour $SO_2$ bubblers), operating on the prescribed every sixth-day schedule report one value over the corresponding 24-hour standard, there is a substantial probability that the standard was in fact exceeded a second time, constituting a violation, on one of the intervening, unmonitored days. In these borderline cases, EPA recommends that the sampling schedule at such sites be increased to every third day. This increase in measurement frequency will substantially improve either the probability of detecting actual violations or the confidence with which the status of compliance is assigned.

3. Recent evidence of elevated oxidant concentrations in rural areas lead EPA to recommend inclusion of nonurban oxidant monitors in monitoring network plans. These data will help to establish the origin and fate of those high oxidant concentrations.

## Status of Nitrogen Dioxide Monitoring

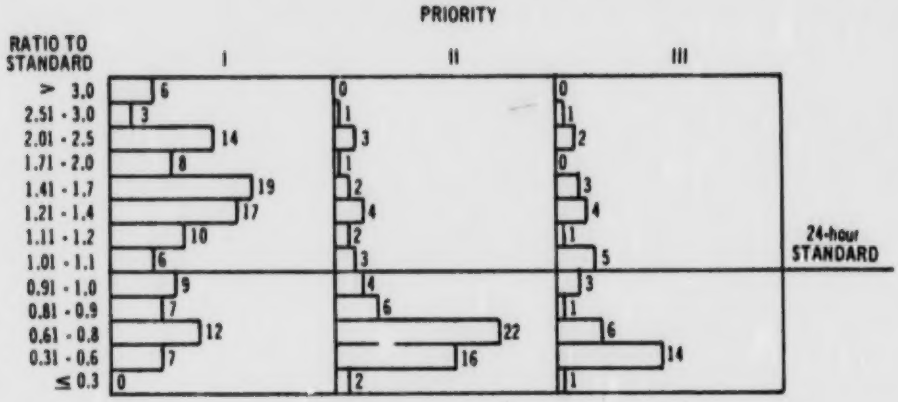
The reference method for nitrogen dioxide ($NO_2$) has been found to be inadequate. Subsequent to the revocation of the original reference method for measuring ambient $NO_2$ concentrations, eight other candidate methods have been evaluated. As the study of these candidate methods nears its conclusion, it is apparent that the chemiluminescence method will be named the reference method. Two other methods, the TGS and the sodium arsenite methods, are likely to be named as acceptable equivalent methods. When these method selections are formally confirmed, a report will be prepared reviewing AQCR status in the light of available current data.

TABLE 8 National Summary Of Air Monitoring Stations Reporting 1973 Data To The National Aerometric Data Bank, June 1974

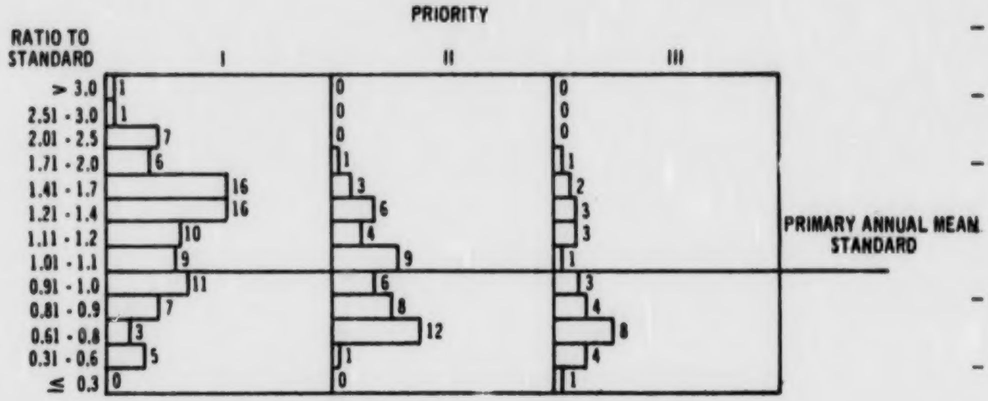
|  |  | $SO_2$ |  |  |  |
|---|---|---|---|---|---|
|  | TSP | Continuous | Bubbler | CO | $O_x$ |
| Stations registered with EPA: 1973 |  |  |  |  |  |
| SIP Stations: | 3022 | 350 | 1104 | 238 | 216 |
| Others: | 569 | 72 | 402 | 60 | 36 |
| TOTAL: | 3591 | 422 | 1506 | 298 | 252 |
| Obligated baseline SIP stations: | 3512 | 698 | 1434 | 457 | 455 |
| Total stations reporting at least |  |  |  |  |  |
| -one valid quarter: | 3390 | 250 | 1385 | 213 | 188 |
| -valid annual data: | 1306 | 51 | 394 | 62 | 52 |

TABLE 9. National Summary of AQCR Status Versus Particulate Standards, 1973

| Priority Class | Number of AQCRs | AQCRs Reporting At Least One Station-Quarter | AQCRs Exceeding 24-hr. Std. | AQCRs Reporting At Least One Station-Year | AQCRs Exceeding Annual Std. |
|---|---|---|---|---|---|
| I/IA | 120 | 118 | 83 | 92 | 66 |
| II | 70 | 66 | 16 | 50 | 23 |
| III | 57 | 41 | 16 | 30 | 10 |
| Total | 247 | 225 | 115 | 172 | 99 |



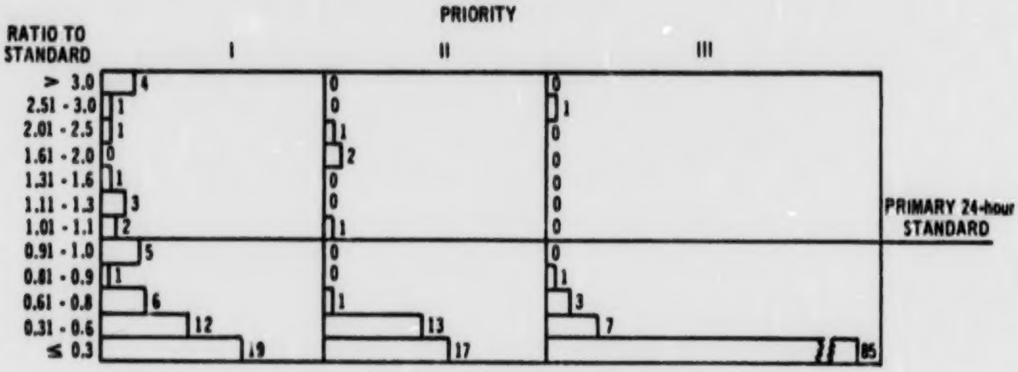
a. SECOND HIGH 24-hour VALUE



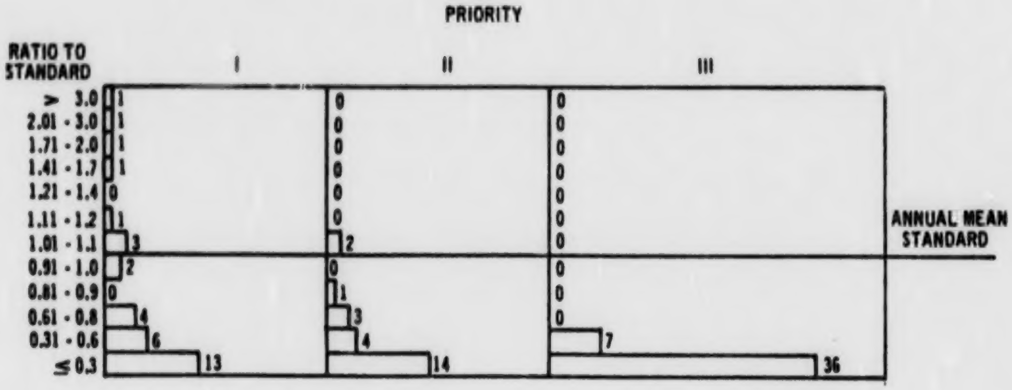
b. MAXIMUM ANNUAL MEAN VALUE

## TABLE 10. National Summary of AQCR Status Versus Sulfur Dioxide Standards, 1973

| Priority Class | Number of AQCRs | AQCRs Reporting At Least One Station-Quarter | AQCRs Exceeding 24-hr. Std. | AQCRs Reporting At Least One Station-Year | AQCRs Exceeding Annual Std. |
|---|---|---|---|---|---|
| I/IA | 60 | 55 | 12 | 33 | 8 |
| II | 41 | 35 | 4 | 24 | 2 |
| III | 146 | 97 | 1 | 43 | 0 |
| Total | 247 | 187 | 17 | 100 | 10 |



a. SECOND HIGH 24-hour VALUE

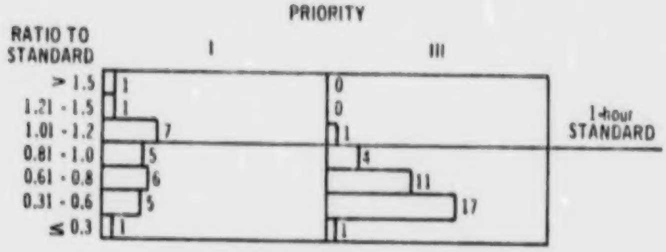


b. MAXIMUM ANNUAL MEAN VALUE

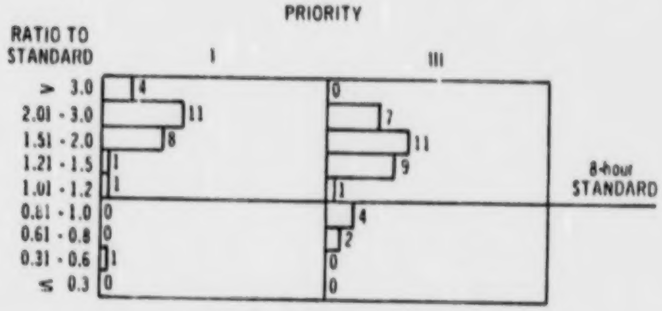
TABLE 11. National Summary of AQCR Status Versus

Carbon Monoxide Standards, 1973

| Priority Class | Number of AQCRs | AQCRs Reporting At Least One Station-Quarter | AQCRs Exceeding 1-hr. Std. | AQCRs Exceeding 8-hr. Std. |
|---|---|---|---|---|
| I | 30 | 26 | 9 | 25 |
| III | 217 | 34 | 1 | 28 |
| Total | 247 | 60 | 10 | 53 |



a. SECOND HIGH 1-hour VALUE



b. SECOND HIGH 8-hour VALUE

TABLE 12. National Summary of AQCR Status Versus the Oxidant Standard, 1973

| Priority Class | Number of AQCRs | AQCRs Reporting At Least One Station-Quarter | AQCRs Exceeding 1 hr. Standard |
|---|---|---|---|
| I | 55 | 41 | 39 |
| III | 192 | 16 | 12 |
| Total | 247 | 57 | 51 |

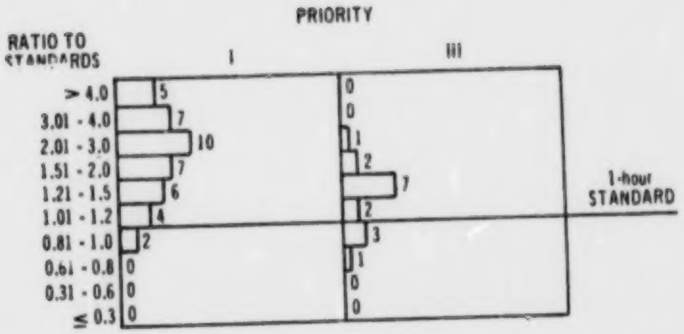


Table 13. Growth in Number of Monitoring Instruments,[a] 1970-1973

| | | $SO_2$ | | | |
|---|---|---|---|---|---|
| Year | Particulate | (Continuous) | (Bubblers) | CO | Ox |
| 1970 | 1345 | 107 | 332 | 82 | 53 |
| 1971 | 2099 | 223 | 596 | 171 | 95 |
| 1972 | 3033 | 335 | 1080 | 241 | 181 |
| 1973 | 3591 | 422 | 1506 | 289 | 252 |

[a] Based on stations registered with E.P.A.; some are not yet reporting comprehensive data.

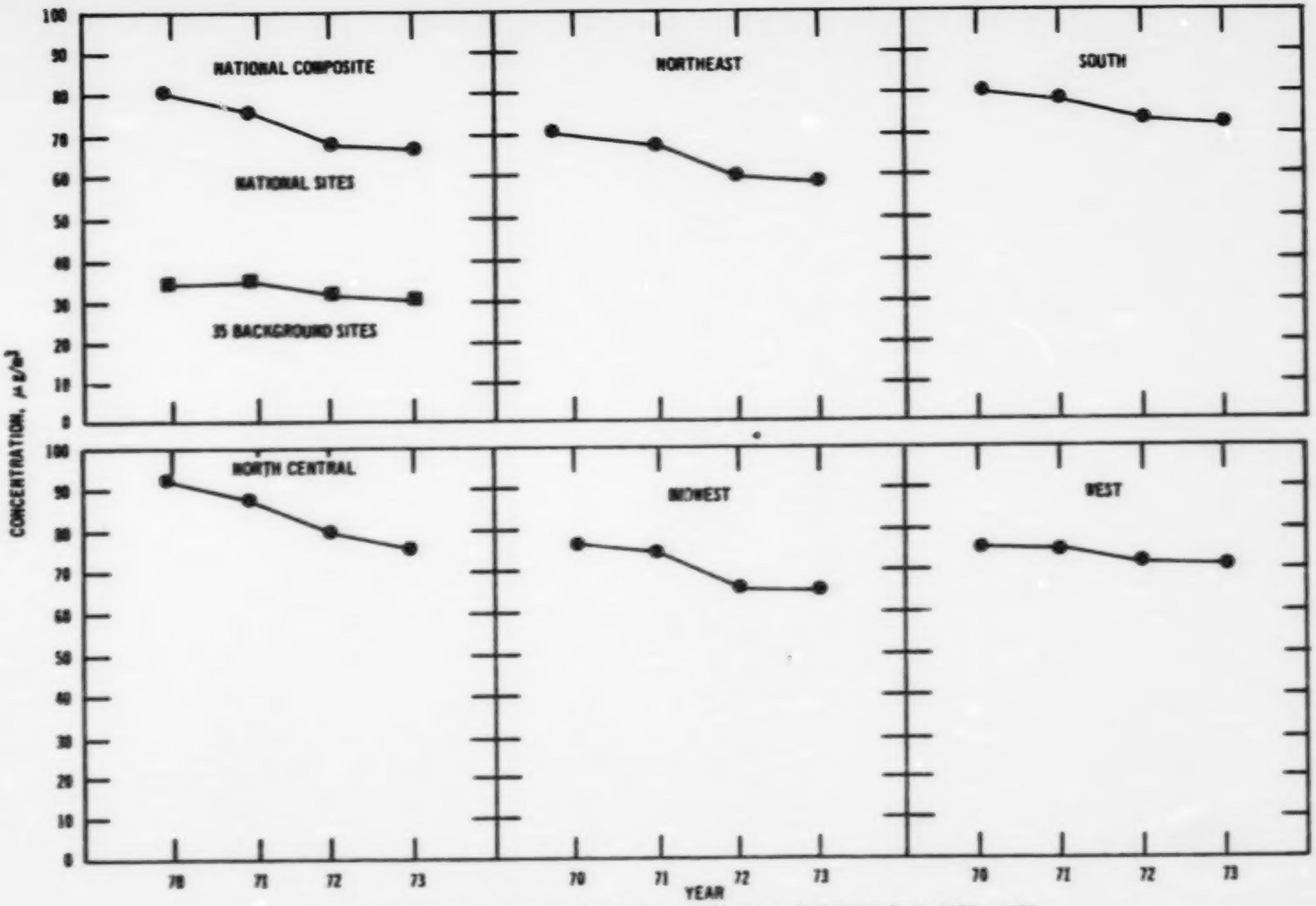


Figure 1 . National and regional trends in total suspended particulate, 1970 - 1973.

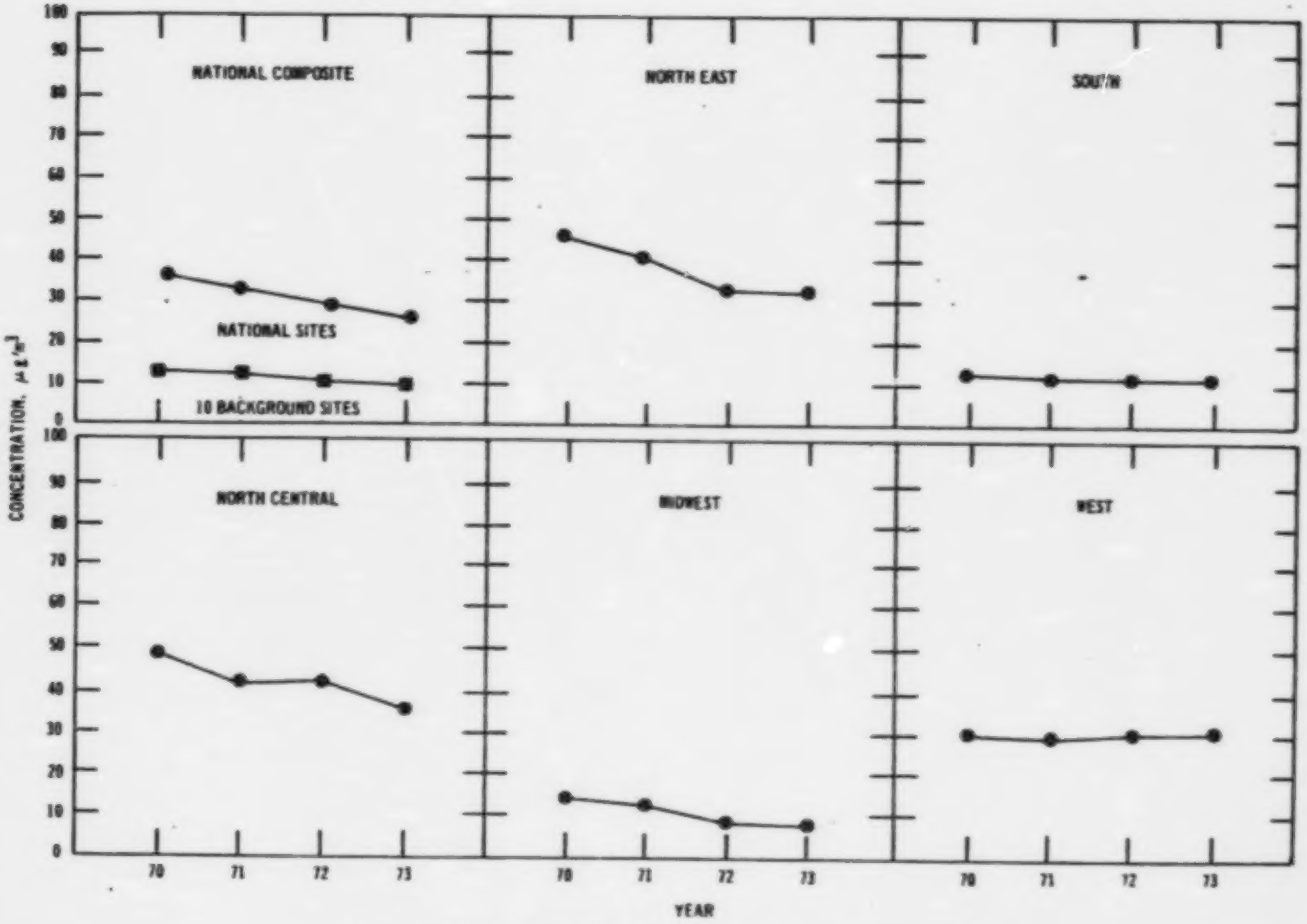


Figure 2. National and regional trends in sulfur dioxide, 1970 - 1973.

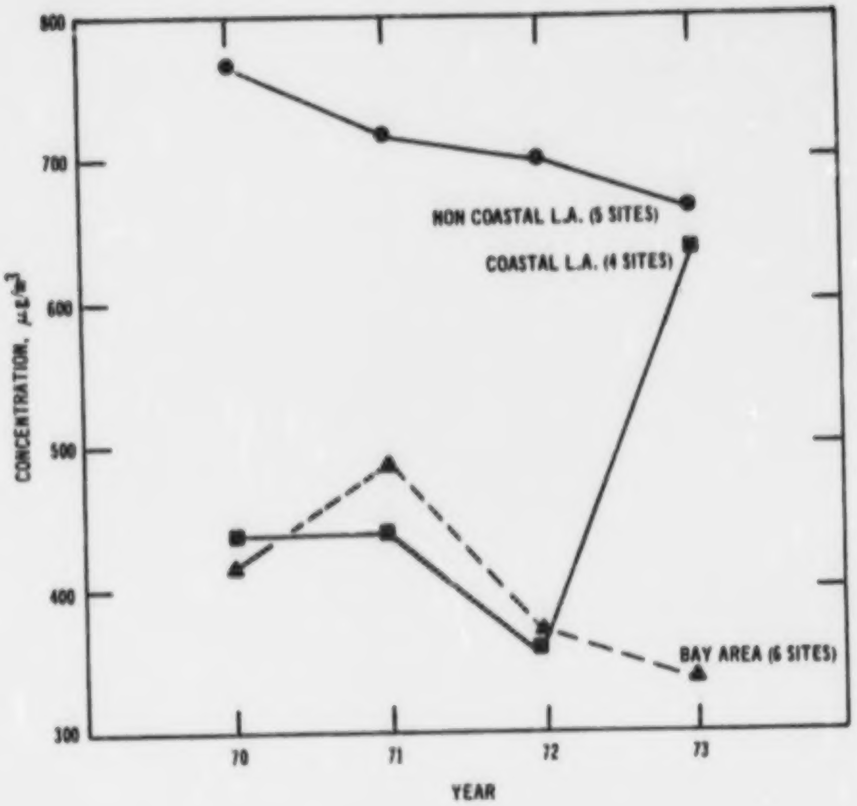


Figure 3. Composite averages of second high annual 1-hour oxidant values for various areas within California.

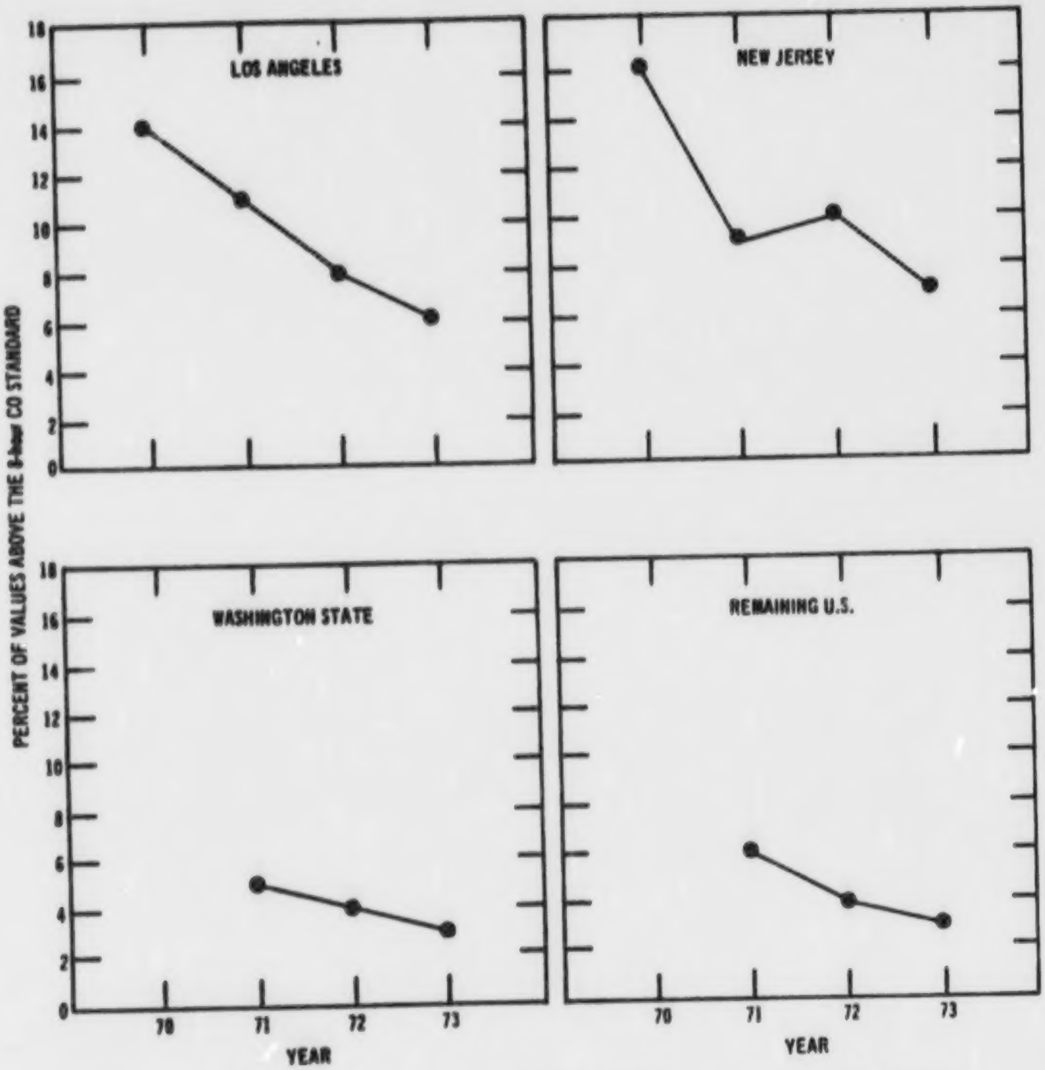


Figure 4. Annual average percent of values above the 8-hour carbon monoxide standard for selected areas, 1970 - 1973.

# VII. THE DEVELOPMENT OF NEW AND IMPROVED AIR POLLUTION CONTROL TECHNIQUES

## STATIONARY SOURCE AIR POLLUTION CONTROL

The development and demonstration of stationary source air pollution control technology is one of EPA's largest tasks. Approximately $28 million were spent on this activity in FY '74. Seventeen million dollars was primarily for on-going programs to demonstrate control methods for sulfur and nitrogen oxides, particulates and other pollutants. Over eleven million dollars (energy supplement) was to expand the programs to respond to the control technology research and development required by the accelerated development of energy resources in the United States.

The purpose of these activities is fourfold:

- To describe at least one method of control for each major source of pollution.
- To provide a technical base for EPA enforcement activities.
- To establish technical and economic data to support New Source Performance Standards (NSPS).
- To provide information required to make environmentally sound decisions on energy development policy.

## Sulfur Oxides

The emphasis of the $SO_x$ control program has been on demonstrating 4 methods of flue gas cleaning which are applicable to new, existing, and future coal and oil-fired utility and industrial combustion units. The four control systems are:

- A wet lime/limestone scrubber at the TVA Shawnee steam plant at Paduca, Kentucky.
- A magnesium oxide scrubber at Boston Edison's oil fired Mystic Station, Everett, Massachusetts.
- A catalytic-oxidation scrubber at Illinois Power System's Wood River Station.
- A sodium-ion scrubber (Wellman-Lord) at Northern Indiana Public Service Company, Gary, Indiana.

On the basis of this and other work, EPA has concluded that demonstrable control technology does exist for $SO_x$ emissions from utility plants. Completion of these demonstrations will advance the technology closer to the maturity level so that it is routinely applicable.

In addition to utilities, smaller industrial and commercial sources make a significant contribution to the ambient $SO_x$ problem. Additional emphasis will be placed on the developing $SO_x$ control technology for these sources.

Lime and limestone flue-gas scrubbing processes produce a sludge by-product that creates a disposal problem. Work has been initiated to assess existing techniques and develop technology to stabilize these sludges for environmentally sound disposal and to find uses for these by-products.

A second technique to reduce the sulfur oxide emissions is to remove the sulfur from the fuel prior to combustion. EPA is supporting research in this field particularly in coal-cleaning methods and fuel oil desulfurization. Feasibility studies have been completed for several fuel cleaning processes and demonstrations are being planned. The Energy Research and Development Agency will now have lead agency responsibility for fuel cleaning research and development. EPA will continue supporting research in environmental assessment and control technology.

A third technique in the $SO_x$ control strategy is combustion process modification. This is the modification of the combustion process which will reduce both sulfur oxide emissions and nitrogen oxide emissions. Several processes are under consideration, including fluidized bed combustion and submerged combustion. The Energy Research and Development Agency will also have lead agency responsibility for fluidized bed combustion. ERDA, EPA and other agencies have developed a National Fluidized Bed Program which will be supported by EPA.

Particulates

The control technology for large particulates is fairly well developed; therefore EPA efforts are mainly concerned with Research and Development for control of fine particulates, that fraction of the particulate emission smaller than 3 micrometers. These small particles remain suspended in the atmosphere and are easily respirable and absorbable into the body. Fine particulates may contain toxic trace metals and sulfates, each of which has considerable impact on health. Control technology for fine particulates is seriously deficient. Current EPA efforts center on developing adequate devices and on field testing as well as development of control methods.

EPA is working both to improve and demonstrate already available collection for fine particulate control devices and to identify and ultimately demonstrate novel devices.

## Nitrogen Oxides

Combustion modification is the only demonstrated method for control of $NO_x$ emissions from fossil fuel burning. Tests of flue gas treatment techniques have shown little promise to date. Presently, the application of combustion technology will allow $NO_x$ emissions from gas and oil-fired utility boilers to be controlled to the NSPS that have been set for these fuel categories.

EPA programs for combustion modification to control $NO_x$ include:

- Air/fuel mixture control (low excess air combustion)
- Staged combustion
- Boiler component design

## Other Pollutants

National Emissions Standards for Hazardous Air Pollutants (NESHAPs) have been set for mercury, asbestos, and beryllium. Other materials which are considered pollutants but for which standards have not been set include trace metals, polycyclic organic matter (POM) and miscellaneous hydrocarbons, fluorides, odors, etc. In general, control technology research efforts are necessary for these materials.

One current goal of the Air Technology Program is to characterize the major sources and the specific chemical and physical properties of trace metal emissions. This is a necessary first phase in the development of control systems.

Several tasks are being funded for field testing coal-fired utility and industrial boilers, and for limited source characterization of gas- and oil-fired units. A field testing program is also planned for residential and commercial heating units.

In addition, control technology development is planned for certain chemical processing sources. These include the zinc compounds industry, a significant source of metallic particulates, and the glass industry, which emits large quantities of arsenic, fluorides, and fine particulates.

Efforts are underway to establish control techniques both for open sources and for selected closed sources of asbestos. The key sources include mining, milling, and manufacturing sites; the latter source tends to be located predominantly in urban areas and contributes substantially to human exposure to asbestos. The objective of the efforts is to develop and demonstrate control technology for handling, unloading, and disposal operations, in addition to demonstrating the operation of a specific methodology for controlling closed sources of asbestos in manufacturing operations. This work is undertaken to supplement control via NESHAPS, since their effectiveness is still unknown.

In control of mercury, an effort is being undertaken to remove mercury from waste gases containing $SO_x$ (such as those gases derived from combustion and nonferrous metallurgical sources) via a combined $SO_x$ and mercury control system. Because both of these substances come from combustion sources, it would be highly useful to have a single system that could effectively control both.

Current methods of POM detection and analysis are generally complex, costly, and time-consuming. Also, it is unknown to what extent POM may actually be emitted as a gas which condenses to a particulate substance, rather than emitted as a particulate. There is, in addition, a problem in obtaining quantitative data on POM emissions, whether in particulates or gaseous form. In situ methods for measuring POM and determining its characteristics are required, as well as techniques for upgrading combustion processes to avoid POM formation. The air program will focus attention on these problems.

EPA has begun to develop control systems through the pilot plant stage of development for the following sources--acrylonitrile plants, refinery crackers, asphalt roofing plants, and ethylene dichloride plants.

# VIII. THE DEVELOPMENT OF INSTRUMENTATION TO MONITOR EMISSIONS AND AIR QUALITY

Methods for the quantitative detection of pollutants in air are essential to EPA's abatement and control program. Initially, methods are needed to determine the extent and causes of a pollution problem and in investigations of the health and welfare effects of the pollutants. When standards are promulgated, reference or compliance methods must also be promulgated, for determining achievement and maintenance of the standards. Furthermore, implementation plans call for determining ambient air quality levels and stationary and mobile source emission levels. For these applications, the methods and associated devices employed must be low cost, reliable, and capable of unattended operation or use by relatively untrained personnel.

In the area of air quality measurements technology, the major problems relate to the reduction in cost to allow more economical deployment in monitoring networks and to improve sensitivity for use in background locations. For source emissions, the major problem is that of the proper interfacing of instruments with the source so as to allow representative samples to reach the instrument. There is also the time-consuming and expensive problem of evaluation on all relevant sources, since interfering substances and conditions vary from source to source. Source emissions measurements technology is still in a developmental stage.

## MONITORING DEVELOPMENTS

### Equivalency

On October 12, 1973, EPA published in the Federal Register a notice of proposed rule making for determining equivalence of ambient air monitoring methods. When finalized, the proposal will establish requirements and procedures applicable to determinations as to whether methods for sampling and analyzing the ambient air may be designated "equivalent" to the established "reference methods."

During 1974 the equivalency document has been reviewed and revised by the Steering Committee and the Office of Management and Budget. Concurrence is expected soon and, following this, publication in the Federal Register is anticipated.

### Source Emission Measurement

During 1974 performance specifications and test procedures were developed for $SO_x$, $NO_x$, and opacity monitors. A stationary source simulator test facility was constructed for the purpose of evaluating measurement methods for gas and particulate emissions. New instrument developments included: an X-ray fluorescense multispectrometer system; a prototype continuous monitor for mass vs. size distribution of particulates (range 0.1 to 10 um diameter); an automated procedure for the analysis of sulfate emissions from vehicles; an objective quantitative method for diesel odor assessment; and a gas correlation instrument designed and built for measuring the low levels of carbon monoxide associated with well controlled vehicles.

## Ambient Air Measurement

The X-ray fluorescence unit developed in 1973 has been successfully operated to analyze up to 35 elements in several hundred ambient air aerosols. The concept of the size selective sampling of particulates presented in the 1973 report has been pursued with the development of a prototype dichotomous instrument. Routine field use of this type of instrument will be investigated.

New, highly sensitive instrumentation for the primary pollutants carbon monoxide and sulfur dioxide and the secondary pollutant $NO_2$ was developed. These instruments are currently being evaluated. A chemiluminescence technique for detection of the alleged carcinogen vinyl chloride has been developed as a laboratory prototype and is being fabricated for monitoring applications. Laser techniques for monitoring over distances of one kilometer have been used for the first time in a regional air pollution study.

## QUALITY CONTROL

A quality control strategy was adopted by the Environmental Protection Agency in February 1973. Its goal is to improve and document the quality of all environmental measurements, ensuring that data collected by EPA, contractors, or State and local agencies have the highest validity. The program incorporates five major functions: 1) standardization of measurement methods, 2) distribution of standard reference materials, 3) publication of procedures and guidelines, 4) evaluation of on-going monitoring activities, and 5) training and technical assistance.

Standard measurement methods have been established for the regulated ambient air pollutants, and testing of systems required for measuring source emissions has progressed on schedule. Measurement methods pursuant to Section 304(g) of PL 92,500, "National Pollution Discharge Elimination System," are undergoing performance testing. Repositories of standard reference materials have been established for ambient air and water, pesticides, radiation, and lead in fuels. A number of quality control guidelines manuals are now available for air, water, radiation, and pesticides measurement. Training in the use of quality control guidelines and calibration standards is proceeding on schedule. A pilot project is underway to automate routinely used instruments at four EPA laboratories by means of mini-computers, and a prototype Regional laboratory data measurement system has been developed. Inter-laboratory performance testing programs have been initiated for measurements in air, water, pesticides, and radiation. On-site evaluations of all EPA monitoring laboratories were initiated in April 1974, and 7 Regional laboratories have been evaluated. Procedures are being developed to evaluate any field monitoring laboratory, and a feasibility study of a certification system for environmental monitoring laboratories is nearing completion.

# IX. STANDARDS SET OR UNDER CONSIDERATION PURSUANT TO TITLE II OF THIS ACT

A number of emission standards have been set, and many regulations have been issued to support EPA's control program in the mobile source area.

## Regulations for Light Duty Diesel Trucks

Regulations for the control of emissions from diesel-powered light-duty trucks, effective with the 1976 model year, were promulgated on October 22, 1974 (39 F.R. 37610). Emission regulations for this light-duty category were not issued previously since no light-duty diesel-powered trucks were being marketed in the United States. The regulations were in response to notification by one manufacturer of plans to market a light-duty diesel truck for the 1976 model year. Other manufacturers have since indicated that they may also market a light-duty diesel truck as early as the 1976 model year.

The standards contained in the proposal are the same as those promulgated for light-duty gasoline-fueled trucks and are expected to be met through application of existing technology. The standards would be applicable beginning in the 1976 model year.

## Motorcycle Regulations

An Advance Notice of Proposed Rulemaking to control emissions from new motorcycles was published on January 17, 1974, (39 F.R. 2108). The need for control of motorcycle emissions stems from the increasing numbers of motorcycles in the urban environment and their relatively high emission levels compared to new cars. The Advance Notice of Proposed Rulemaking communicates to motorcycle manufacturers the course of action EPA is considering regarding the stringency and timing of motorcycle regulations, thus providing them with the maximum possible lead time, and also seeks comments on technical aspects of the regulations.

Many factors -- for example, increased personal income, increased leisure time, improved products and greater general public acceptance -- have caused the motorcycle population to expand sharply over the past few years. EPA estimates that 2.3 million motorcycles will be offered for sale in 1976, compared with a projected 12 million automobiles. On the average, an uncontrolled motorcycle emits 20 times more hydrocarbons per vehicle mile than an automobile controlled to the 1977 standards. The average motorcycle however, annually travels only one-third the miles of the average automobile. Based on these data, the new motorcyles sold in 1976 and thereafter will, if left uncontrolled, add a greater hydrocarbon burden to the atmosphere than all new automobiles sold in each of those years.

In addition, the proposed rulemaking for the Approval and Promulgation of Implementation Plans (40 CFR Part 52) for the States of Arizona, California, and New Jersey includes certain limitations on the regulation and operation of motorcycles. These limitations are necessary to reduce total hydrocarbons and carbon monoxide levels in those regions and to prevent a counterproductive shift from automobiles to motorcycles as a result of other elements of the control strategy. The proposed rulemaking states, "In an attempt to remove the ceiling on motorcyle registration, the Agency will evaluate the feasibility of establishing emission standards for new motorcyles and will evaluate the availability of motorcycle emission control technology for meeting emission standards for retrofit." In comments submitted to EPA in response to this proposed rulemaking, the motorcycle industry stated that technology is available and can be implemented with reasonable production lead time.

Proposed regulations for new motorcycles are expected to be published in mid-1975.

Non-Methane Hydrocarbon Exhaust Emission Standards

On May 10, 1974, an Advance Notice of Proposed Rulemaking was published for conversion of current standards for motor vehicle hydrocarbon exhaust emissions to a nonmethane basis (39 F.R. 16904). This action was in response to a formal petition by Ford Motor Company for such an amendment.

The rationale set forth in Ford's petition may be summarized as follows: (1) methane is a photochemically non-reactive hydrocarbon; (2) catalyst-equipped vehicles are likely to have a greater proportion of methane in their exhaust than current vehicles; (3) current standards limit emissions of all hydrocarbons including methane, thereby penalizing catalyst-equipped vehicles; and (4) this penalty creates a hardship by making it more difficult to control $NO_x$ and causing fuel economy to suffer.

Ford did not provide any evidence to support its contention of hardship and informal contacts with other manufacturers indicated a difference of opinion on the need to adopt a non-methane based standard.

Therefore, EPA's position was that additional information justifying the need for the change was required before it could embark on a program to develop regulations. The Advance Notice of Proposed Rulemaking was aimed at obtaining the comments of other manufacturers and interested parties so as to allow EPA to base its decision on the merits of the issue. The comments on the Advance Notice have been received and are presently being reviewed by EPA.

### Regulations for Certification of New Vehicles Intended for Sale at High Altitudes

On October 18, 1974, EPA promulgated rulemaking which would require that new motor vehicles offered for sale in high altitude regions in the Nation be certified for compliance with Federal emission standards at high altitudes (39 F.R. 37300). Under the previous certification process, all certification test vehicles including those intended for sale at high altitude areas were tested in Ann Arbor, Michigan, at essentially sea level conditions; those complying with the standards could be sold anywhere in the Nation.

The Clean Air Act requires that all new vehicles, wherever sold or operated, meet Section 202 emission standards. EPA has promulgated these regulations because its studies of comparative emission levels of various United States cities show that vehicles at high altitude have higher emissions than those same vehicles at low altitude. For 1968 through 1971 model year vehicles tested in Denver, carbon monoxide and hydrocarbon levels were 60 percent and 50 percent respectively, above the national average. Three air quality control regions at high altitudes -- Denver, the Wasatch Front (Salt Lake City, Odgen, and Provo, Utah), and El Paso, Texas/Las Cruces Alamogordo, New Mexico -- have ambient air levels high enough to require transportation controls. Substantial improvements in ambient air quality in these regions are expected to come from the new Federal emission standards for autos when the new 1977 autos are equipped to meet the emissions standards at high altitude.

## Regulations for Certification of Low-Emission Vehicles

The purpose of regulations for certification of low emission vehicles is to encourage development of vehicles with significantly lower emission levels than vehicles certified to meet Federal emission standards. Vehicles so certified are then eligible for purchase by the Federal Government at premium prices. Low emission vehicle certification regulations, applicable to 1973 and 1974 model year light duty vehicles, were issued by EPA in 1971. On September 10, 1974 EPA promulgated regulations extending the provisions to 1975 and later model year light-duty vehicles (39 F.R. 32612).

## Aircraft Emissions Regulatory Actions

EPA published a Notice of Proposed Rulemaking applying to emissions from engines powering supersonic aircraft on July 22, 1974 (39 F.C. 26653). This followed up a commitment made in the preamble to the basic EPA aircraft regulations promulgated on July 17, 1973, stating that because of specialized technological constraints limiting the ability of supersonic aircraft to meet the same standards applicable to subsonic aircraft, separate standards would be published for this class.

The regulations proposed reflect the same types of combustor design technology but make due allowances for the less efficient engine cycles used for propulsion of aircraft designed for supersonic flight speeds. Public hearing were held concerning this Notice of Proposed Rulemaking in Boston, Massachusetts, on November 19, 1974, and in Los Angeles, California, on November 26, 1974.

# X. THE STATUS OF STATE, INTERSTATE, AND LOCAL POLLUTION CONTROL PROGRAMS ESTABLISHED PURSUANT TO AND ASSISTED BY THIS ACT

A single agency is designated to administer Air Quality Control Programs in each of the 50 States, the District of Columbia, Guam, Puerto Rico, the Virgin Islands, and American Samoa. In addition, approximately 265 local agencies, concerned with air pollution control at the municipal level, work in coordination with the 55 State agencies. The State agencies are generally organized as follows:

- 32 environmental agencies combining air, water and possibly other environmental protection programs, and in at least 6 States exercising significant natural resources management.
- 17 health agencies combining air pollution control functions (and possibly other environmental protection programs) with traditional medical health protection functions.
- 6 air agencies specializing predominately in the control of air pollution

Local governmental agencies (cities, counties, etc) have traditionally carried out the major portion of the regulatory and enforcement aspects of air pollution control, including air monitoring. In recognition of the regional nature of air pollution problems, several of these local agencies have organized into regional organizations in recent years. Outside of major cities, the provision of air pollution services by a single agency in several governmental jurisdictions has resulted in a number of multi-county agencies. In 1974 only 26 percent of the local agencies were in city governments,while 40 percent were at the county level, and 34 percent were in a city-county, multi-county, multi-city or some other broaden coverage kind of organizational arrangement.

## FEDERAL FINANCIAL ASSISTANCE TO AIR POLLUTION CONTROL AGENCIES

EPA provided financial assistance to 54 State agencies (the single exception being American Samoa) and 150 local agencies. Twenty-two local agencies also received Federal monies as specified through State grants. The total expenditures of these 204 agencies represented approximately 95% of the total expenditures of all State and local air pollution control agencies in FY1974. This assistance takes the form of grants for planning, developing, establishing, or improving or maintaining programs for the prevention and control of air pollution, supplemented by special contractual assistance for the conduct of specific Federally-required planning activities. Grants awarded in Fiscal Years 1972, 1973, and 1974 are summarized in Table 14.

## PROGRESS OF STATE AND LOCAL AIR POLLUTION CONTROL PROGRAMS

Total expenditures for the support of air pollution control programs have grown at an average annual rate of approximately 30 percent, from $13 million in Fiscal Year 1965 to an estimated $129 million in Fiscal Year 1974. The percentage of these expenditures provided by Federal financial assistance has increased from

## Table 14

## Summary of Grant Awards[1] to State and Local Air Pollution Control Agencies by State

| State or Territory | 1972 | 1973 | 1974 Preliminary | 1975[2] Estimated |
|---|---|---|---|---|
| Alabama | 527,324 | 786,059 | 1,443,312 | 875,000 |
| Alaska | 69,775 | 183,240 | 165,100 | 186,000 |
| Arizona | 207,049 | 718,104 | 658,761 | 715,000 |
| Arkansas | 208,527 | 280,295 | 407,000 | 250,000 |
| California | 3,690,260 | 3,637,559 | 3,611,240 | 3,863,000 |
| Colorado | 900,784 | 595,626 | 646,333 | 710,000 |
| Connecticut | 1,355,796 | 1,014,406 | 1,240,972 | 1,414,000 |
| Delaware | 189 | 388,454 | 256,069* | 270,000 |
| D. C. | 225,000 | 80,823 | 334,134* | 240,000 |
| Florida | 885,741 | 1,153,204 | 924,493 | 1,025,000 |
| Georgia | 630,218 | 600,366 | 684,250 | 780,000 |
| Hawaii | 96,445 | 175,400 | 189,435 | 251,000 |
| Idaho | 81,687 | 148,237 | 205,100 | 214,000 |
| Illinois | 2,423,520 | 2,897,780 | 2,914,358 | 2,945,000 |
| Indiana | 826,034 | 772,809 | 1,183,822 | 1,310,000 |
| Iowa | 559,243 | 645,258 | 579,780 | 540,000 |
| Kansas | 335,761 | 596,319 | 476,293 | 479,000 |
| Kentucky | 159,028 | 1,115,903 | 953,267 | 1,170,000 |
| Louisiana | 175,000 | 349,959 | 807,200 | 385,000 |
| Maine | | 245,349 | 106,000 | 192,000 |

| | | | | |
|---|---|---|---|---|
| Maryland | 987,000 | 1,206,184 | 1,365,901* | 1,153,000 |
| Massachusetts | 794,385 | 1,247,799 | 1,116,982 | 1,123,000 |
| Michigan | 1,613,520 | 1,999,772 | 1,999,424 | 1,875,000 |
| Minnesota | 365,669 | 661,174 | 674,098 | 705,000 |
| Mississippi | 421,724 | 269,852 | 392,875 | 470,000 |
| Missouri | 717,574 | 1,145,850 | 1,090,698 | 1,114,000 |
| Montana | 231,460 | 265,000 | 326,000 | 340,000 |
| Nebraska | 231,929 | 247,116 | 408,642 | 324,000 |
| Nevada | 245,702 | 247,956 | 293,311 | 388,000 |
| New Hampshire | 185,409 | 227,609 | 172,546 | 211,000 |
| New Jersey | 2,135,581 | 1,837,292 | 2,178,144 | 2,230,000 |
| New Mexico | 706,440 | 302,543 | 328,800 | 495,000 |
| New York | 3,967,790 | 4,748,350 | 4,849,997 | 4,980,000 |
| North Carolina | 1,489,039 | 1,157,038 | 1,361,523 | 1,450,000 |
| North Dakota | 45,000 | 61,950 | 69,000 | 120,000 |
| Ohio | 1,798,153 | 2,450,000 | 2,605,619 | 2,522,000 |
| Oklahoma | 484,906 | 481,408 | 471,600 | 520,000 |
| Oregon | 486,828 | 567,060 | 668,400 | 729,000 |
| Pennsylvania | 2,080,700 | 2,559,125 | 2,689,400* | 3,290,000 |
| Rhode Island | 133,899 | 197,117 | 265,000 | 185,000 |
| South Carolina | 111,783 | 773,546 | 493,967 | 550,000 |
| South Dakota | 32,025 | 32,000 | 27,667 | 95,000 |
| Tennessee | 703,614 | 1,165,570 | 884,317 | 1,010,000 |
| Texas | 2,603,299 | 2,789,526 | 2,398,800 | 2,910,000 |
| Utah | | 164,100 | 150,000 | 165,000 |

| | | | | |
|---|---|---|---|---|
| Vermont | 224,426 | 173,669 | 150,000 | 180,000 |
| Virginia | 1,062,000 | 1,005,674 | 991,381* | 954,000 |
| Washington | 1,129,910 | 1,209,263 | 1,083,400 | 1,151,000 |
| West Virginia | 317,620 | 586,935 | 700,470* | 458,000 |
| Wisconsin | 965,448 | 883,700 | 824,170 | 905,000 |
| Wyoming | 68,133 | 88,824 | 100,000 | 130,000 |
| American Samoa | -0- | -0- | -0- | -0- |
| Guam | 54,774 | -0- | 66,150 | 156,000 |
| Puerto Rico | 464,417 | 691,552 | 226,124 | 400,000 |
| Virgin Islands | 100,043 | 72,806 | 77,735 | 80,000 |
| Subtotal | | 47,882,510 | 49,289,060 | 51,182,000 |
| Special Support[3] | | 2,964,259 | 2,915,999 | |
| Multiregional Projects | | | | 336,000 |
| Total | $40,317,581 | 50,846,769 | 52,205,059 | 51,518,000 |
| Federal Fiscal Yr Budget | | 50,804,800 | 51,518,000 | 51,518,000 |

[1] Awards are related to Federal Fiscal Year and include Federal Assignees, and dollars carried from previous year. For most states, dollars do not relate to budgets for the State's Fiscal year.

[2] The estimates for 1975 include Special Support monies (contractor assistance and demonstration grants) provided States.

[3] Special support include grant and contractor assistance for State Implementation plan revision, development, and evaluation.

*For these States preliminary 1974 estimates are related to awards made during Fiscal year 1974.

approximately 31 percent in Fiscal Year 1965 to a peak of 43%, and took a downward turn to 41 percent in FY 1974. However, the portion of these expenditures provided by State and local revenue sources has grown eight-fold during the same period, from $9 million in Fiscal Year 1965 to an estimated $76.7 million in Fiscal Year 1974.

The increase in the number of employees of State and local control agencies is an indicator of the Nation's growing capability to control air pollution. Table 15 shows that the number of on-board personnel has more than doubled in the last 5 years. The on-board positions represent approximately 6500 equivalent full-time manyears of effort.

Table 15

Personnel Employed by State and Local Air Pollution Control Agencies (On Board) Full and part-time

Fiscal Year

| Agency Level | 1969 | 1971 | 1973 | 1974 |
|---|---|---|---|---|
| State | 997 | 1,537 | 2,929 | 3,261 |
| Local | 1,840 | 2,628 | 3,266 | 3,975 |
| Total | 2,837 | 4,165 | 6,195 | 7,236 |

Orginal manpower estimates contained in the SIPs indicated that a manpower level by FY 75 of about 8,500 would be necessary to accomplish clean air objectives. The trend indicated in Table 15 is encouraging; it is hoped that the original manpower estimates will be met. However, it should be noted that since this estimate was made additional requirements have been put on the States because of additional actions required on transportation controls implementation, prevention of significant degradation of air quality, and indirect sources/maintenance of standards.

Additional resource estimates made in December 1973 indicate that a total level of 9500 manyears is required to implement the SIPs in 1974 and 10,200 manyears would be required by 1975. The 1973 estimates accounted for some of the program demands anticipated in the above actions. However, these reassessments may be low in States where revisions to control plans must be made to attain standards, where air quality maintenance plans must be implemented, and where implementation of Federal programs such as enforcement of new source performance standards will be carried out. In addition the involvement of States in the Federal Energy Act policies concerning air pollution control strategies may also result in the States making an additional upward projection of their resource needs.

Figure 5 compares the actual growth of agency manpower with estimated levels (original and revised for SIP achievement) as well as with estimates derived from a manpower model. In July 1974, the agencies had available approximately 70 percent of the manpower stated as being needed by 1975 to accomplish the basic SIPs and revisions to those SIPs. However, approximately two-fifths of the States did not expend in 1974 a manyear effort equivalent to 60 percent of the State needs.

Figure 6 compares actual State and local program funds to estimates of SIP needs - original and revised - and to estimates based on program costs commensurate with the manpower model. The anticipated 1975 and 1977 expenditures for the accomplishment of the basic SIP and anticipated revisions are approximately $188 million and $210 million, respectively. In 1974, the agencies had available approximately 69 percent of the funds stated as needed by 1975. Approximately one-third of the States spent less than 60 percent of their revised 1975 needs.

Significant increases were made between July 1973 and July 1974 in agency resources. Funding increased by approximately 13 percent ($15 million) and manyears of effort by 15 percent (850 manyears). State and local funds increased by 21 percent over a similar period (July 73 - July 74), while available Federal funds increased by only 4 percent.

Accomplishments of the State programs have been reflected throughout this report in the sense of their activities in developing, implementing, and enforcing SIPs.

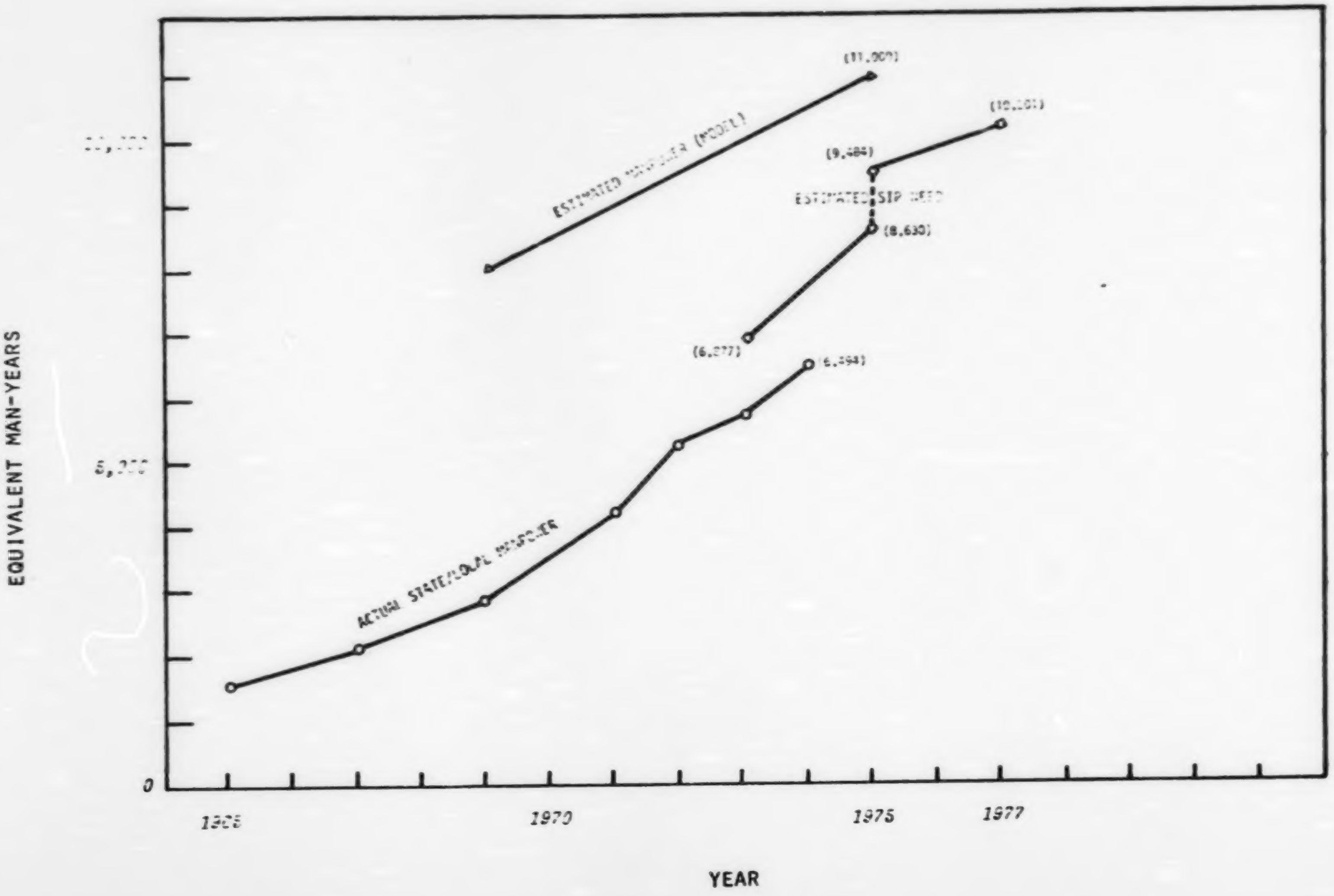


Figure 5 Comparison of actual and needed State and local air pollution control program manpower.

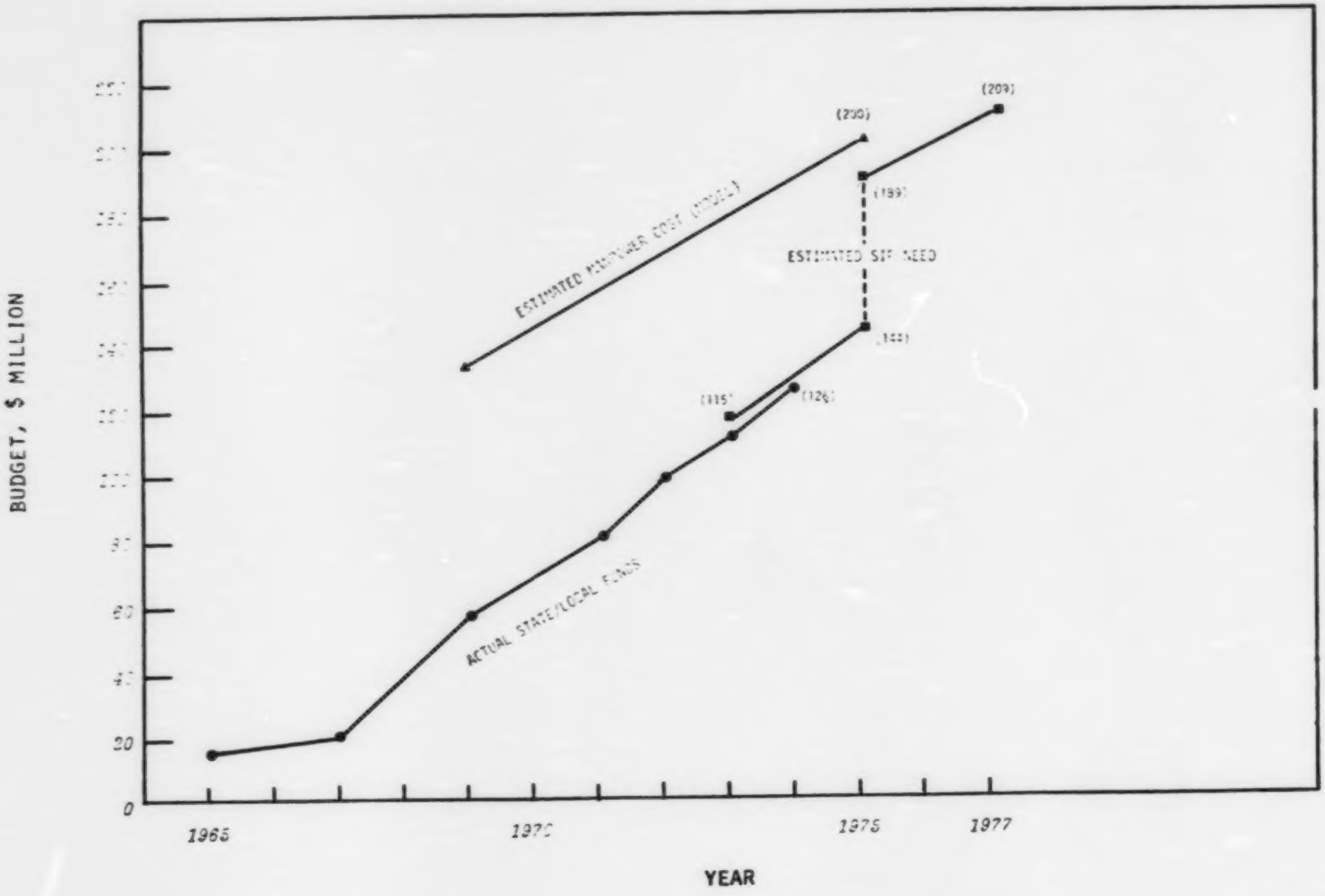


Figure 6 Comparison of actual and needed State and local air pollution control program funds.

# APPENDIX

## Summary of EPA's Stationary Source Air Enforcement Actions
May 1972 - November 1974

# SUMMARY OF EPA ENFORCEMENT ACTIONS

## SECTION 110 - STATE IMPLEMENTATION PLANS

December 1974

NOTE: SOURCES ARE LISTED IN ALPHABETIC ORDER FOR EACH STATE WITHIN EACH EPA REGIONAL OFFICE. FACILITIES WITH ACRONYMS FOR NAMES (EG AAA MFG. CO.) ARE LISTED AT THE END OF EACH STATE

## REGION I.

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Connecticut, Rockville | Amerbelle Corp.<br>Printing Plant | Violation of hydrocarbon emission standard. | Notice of violation issued 8/5/74. Admin. order issued 9/13/74. | Co. has chosen reformulation as means of compliance. The order requires submittal of all formulations used which it has not fully complied with to date. |
| Connecticut, Bridgeport | Bullard Castings, Inc.<br>Cupola Furnaces | Violation of particulate (opacity process weight, and fugitive dust) emission stds. | Notice of violation issued 10/12/73 Admin. order issued 2/14/74. | Co. has complied with second set of increments in order. State is monitoring compliance. |
| Connecticut, Derby | Hull Dye and Print Works<br>Textile Plant | Violations of opacity, and hydrocarbon emission std. caused by uncontrolled emissions from the drying operation. | Notice of violation issued 12/5/73. Admin. Order issued 2/14/74. Order amended 8/14/74. extending date for final compliance to | Co. complied with the first increment on 9/15/74. Completion of installation of control equipment should take place by 1/1/75. State is monitoring their progress. |
| Connecticut, Middletown | Russell Mfg. Div. Fenner America Ltd.<br>PVC Belting Operation | Violation of opacity std. | Notice of violation issued 12/14/73. Admin. order issued 7/5/74. | Appear to be in final compliance as of 12/1/74. Compliance status to be established. |
| Connecticut, Waterbury | Waterbury Rolling Mills, Inc.<br>Metallurgical Operation | Violations of opacity std. | Notice of violation issued 10/31/73. Admin. order issued 2/14/74. | Due to continued financial problems the Co. is shut down indefinitely. The order remains in effect should they decide to reopen. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Maine, Winslow | Scott Paper Co.<br>Paper Mfg. | Violation of State compliance increments of progress. | Consent order was issued 6/7/74. | EPA is monitoring co.'s progress in accordance with the Consent Order, State implementation dates. The co. has complied with the 3rd increment of the consent order which is to achieve the specified interim SO2 emission limitation by 10/30/74. |
| Massachusetts, Boston | American Barrel Co.<br>Incinerator | Violation of opacity and open burning regs. | Notice of violation issued 3/15/73. Admin. Order issued 9/18/73. | Source complying with terms of order. |
| Massachusetts, Norwood | American Biltrite | Violation of hydrocarbon regs. | Notice of violation issued 10/11/74. | Conference held. Order will be issued. |
| Massachusetts, Boston | Boston, City of<br>Incinerator | Violation of opacity and particulate emission limitations. | Notice of violation issued 11/20/74. | Conference held 12/20/74. |
| Massachusetts, Boston | Boston Edison Co. L Street Station<br>Power Plant | Violation of particulate (opacity) emission regs. | Notice of violation issued 11/9/73. | Stack testing program has been completed. Edison is presently compiling data and preparing report for Dec. 1974. submittal. |
| Massachusetts, Everett | Boston Edison Co. Mystic Station<br>Power Plant | Violation of particulate (opacity) emission regs. | Notice of violation issued 11/9/73. | Stack testing program has been completed. Edison is presently compiling data and preparing report for Dec. 1974 submittal. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Massachusetts, Boston | Boston Edison Co. New Boston Station<br>Power Plant | Violation of particulate (opacity stds. | Notice of violation issued 11/9/73. | Edison is presently preparing report of emission test results as evidence of compliance status. |
| Massachusetts, Quincy | General Dynamics | Violation of particulate (fugitive dust) & hydrocarbon regs. | Notice of violation issued 10/4/74. | Conference held. Co. submitted hydrocarbon process info. as per s114 ltr. Consent order will be issued for open shot blasting & spray paint operations. Pending. |
| Massachusetts, Lynn | General Elec. Co.<br>Electronics Mfg. | Violation of hydrocarbon regs. | Notice of violation issued 10/4/74. Order issued 12/18/74. | First increment not due at this time. |
| Massachusetts, Boston | H.N. Hartwell & Son<br>Fuel Distrib. | Violation of sulfur oxide std. (regs prohibiting sale of high sulfur fuel) | Notice of violation issued 3/16/73. | Achieved final compliance. |
| Massachusetts, Lawrence | Lawrence, City of<br>Open Burning | Violation of open burning regs. | Notice of violation issued 6/6/73. | The transfer station has been completed and is operational confirmed by EPA inspection. Dump is currently being closed in accordance with MA DPH regs. |
| Massachusetts, Lowell | Lowell, City of<br>Incinerator | Violation of particulate emission limitations. | Notice of violation issued 11/20/74. | |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Massachusetts, Marblehead | Marblehead Town of<br>Incinerator | Violation of particulate emission limitations. | Notice of violation issued 11/20/74. | Conference held. 12/13/74. |
| Massachusetts Somerset | New England Power Co.<br>Brayton Point<br>Power Plant | Violation of sulfur oxide and particulate emission stds. | Notice of violation issued 9/6/73. | Electrastic precipitators are being upgraded. Further studies will be conducted on flue gas desulfurization. |
| Massachusetts, Boston | Northeast Utilities Service<br>Power plant | Violation of sulfur oxide emission limitation. | Notice of violation issued 3/16/73. | Achieved final compliance. |
| Massachusetts, Watertown | Odell Co. | Violation of hydrocarbon regs. | Notice of violation issued 10/11/74. | Conference held. Order will be issued. |
| Massachusetts, Needham Franklin Framingham | Penn Central Trans. Company<br>Passenger & Freight Terminals | Transfer of cement products violating particulate (opacity) emission stds; trucks idling contrary to requirements of MA SIP | Notice of violation issued 7/2/73. Admin. Order issued 4/12/74 for commuter passenger service | Commuter passenger service order to cease excessive idling violations. Presently in compliance. |
| Massachusetts, Canton | Plymouth Rubber Co.<br>Rubber Mfg. | Violation of particulate (opacity) emission regs. | Notice of violation issued 9/27/74. | Conference held with Co., order to be issued. |
| Massachusetts, Salem | Salem, City of<br>Incinerator | Violation of opacity and particulate emission limita-. tions. | Notice of violation issued 11/20/74. | Conference held 12/16/74. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Massachusetts, Somerville | Somerville Smelting<br>Metallurgical Process | Violation of opacity reg. | Notice of violation issued 1/8/74. Admin. order issued 4/30/74, ammended 8/29/74. | Co. issued purchase order & submitted installation schedule per 4/30/74 Order. Order amended 8/29/74 to incorporate installation schedule. |
| Massachusetts, North Easton | Steadfast Rubber Co. Inc.<br>Rubber Mfg. | Violation of hydrocarbon emission standard. | Consent Order issued 11/11/74. | |
| Massachusetts, Boston | Texaco, Inc.<br>Fuel distrib. | Violation of sulfur oxide emission limitations (regs prohibiting sale of high sulfur fuel) | Notice of violation issued 2/1/73. | Achieved final compliance 2/12/73. |
| Massachusetts, Boston | Union Petroleum Corp.<br>Fuel distrib. | Violation of sulfur oxide std. (regs. prohibiting sale of high sulfur content fuel) | Notice of violation issued 3/16/73. | Achieved final compliance |
| Massachusetts, Weymouth | Weymouth, Town of<br>Incinerator | Violation of particulate emission limitations. | Notice of violation issued 11/20/74. | Conference held 12/23/74. |
| Massachusetts, Arlington | Wilfret Bros. Realty Trust<br>Incinerator | Violation of particulate emission stds. | Notice of violation issued 7/2/73. Admin. order issued 12/3/73. | Presently in compliance with terms of order. |
| Rhode Island, Bistol | Bristol, City of<br>Open dump | Violation of open burning | Notice of violation issued 4/23/73. | In final compliance. |
| Rhode Island, Middletown; | Middletown, City of<br>Open dump | Violation of open burning reg. | Notice of violation issued 10/13/72. | Achieved final compliance |
| Rhode Island, Newport | Newport, City of<br>Open dump | Violation of open burning reg. | Notice of violation issued 10/23/72. Enforcement order issued 1/11/73. | Achieved final compliance |
| Rhode Island, Johnston | Seaboard Foundry Inc.<br>Grey Iron Foundry | Violation of particulate (opacity and process weight) stds. | Notice of violation issued 8/1/73. | Achieved final compliance. |

## REGION II

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| New Jersey, Ridgefield Park | Arnatex Dyeing & Finishing Co., Inc.<br>Textile Mfr. | Violation of opacity reg. | Notice of violation issued 9/26/74.<br>Admin. Order issued 11/20/74. | Source in compliance with EPA order. |
| New York, Niagara Falls | Airco Alloys.<br>Foundry | Failure to respond to section 114 inquiry. | Admin. order issued 10/10/74. | Source complied with EPA order. |
| New York, Tonawanda | Ashland Petro. Co.<br>Refinery | Failure to respond to a section 114 inquiry. | Admin. order issued 10/24/74. | Source complied with EPA order. |
| New York, Babylon | Babylon, City of<br>Incinerator | Violation of opacity reg. | Notice of violation issued 8/28/74. | Conference held 9/30/74. Negotiating order. |
| New York, Schenectady | Cushing Stone Company, Inc.<br>Rock Crushing | Failure to file NYS recertification forms. | Notice of violation issued 9/11/74. | Source in compliance. |
| New York, Fort Edward | Decora, Div. of United Merchants & Manufacturers, Inc. | Failure to file NYS recertification forms. | Notice of violation issued 9/19/74. | Source in compliance |
| New York, Green Island | Ford Motor Co.<br>Industrial Boiler | Violation of opacity reg. | Notice of violation issued 1/11/74. | Source installed new boiler and upgraded operating procedures; presently in compliance. |
| New York, New York | Frank Mascali and Sons Inc.<br>Asphalt Concrete Mfr. | Violation of opacity reg. | Notice of violation issued 11/4/74. | Conference held 12/3/74. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| New York, Waterford | General Electric Co., Silicone Prods. Dept.<br>Electronics Mfg. | Failure to file NYS recertification forms. | Notice of violation issued 9/19/74. | Source in compliance. |
| New York, Buffalo | The Hanna Furnace Corp.,<br>Steel Mfg. | Failure to respond to section 114 inquiry. | Order issued 10/15/74. | Source in compliance. |
| New York, Hickersville | Hooker Chem. Corp. Ruco Div.<br>Chem. Mfr. | Failure to file NYS recertification forms. | Notice of violation sent 9/12/74. | Source in compliance |
| New York, Roslyn | North Hempstead Municipal Incinerator<br>Incinerator | Violation of opacity regs. | Notice of violation issued 6/7/74; Administrative order issued 9/25/74; amended 10/11/74. | Conference held on 6/26/74 and 10/3/74. |
| Puerto Rico, Ponce | Puerto Rico Cement Inc.<br>lime kilns | Violation of opacity reg. | Notice of violation issued 5/9/74. Two consent orders signed 8/12/74. | Conference held-covered Ponce' facility also. |
| Puerto Rico, San Juan | Puerto Rico Cement Inc.<br>Lime Kilns | Violation of opacity reg. | Notice of violation issued 5/9/74. Consent Order signed 8/12/74. | Source in compliance with consent order. |
| Puerto Rico, San Juan | Puerto Rico Water Resources Authority "Palo Seco" (Toa Baja) Station/power plant. | Violation of opacity reg. | Notice of violation issued 9/19/74. | Additional information submitted and being reviewed. Conference held 11/21/74. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Puerto Rico, San Juan | Puerto Rico Water Resources Authority Puerto Nuevo Station.<br>Power Plant | Violation of opacity reg. | Notice of violation issued 9/19/74. | Conference held 11/21/74. Additional info submitted and being reviewed. |
| U.S. Virgin Islands | St. Croix Petrochemical Corp./ petrochemical company. | Violation of federally promulgated new source review requirements of SIP. | Notice of violation 10/18/74. | Co. stopped construction until approval to construct was granted. |
| Virgin Islands, St. Croix | St. Croix Petrochemical Corp.<br>Chemical Mfg. | Violation of federally promulgated new source review requirements of SIP. | Notice of violation issued 10/18/74. | Co. stopped construction until approval to construct was granted. |
| Virgin Islands, St. Croix | Vir. Ils. Water & Power Authority<br>Power Plant | Violation of federally promulgated SIP new source review regulations. | Notice of violation issued 11/8/74. | Source has filed required new source review data. |

# REGION III

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Delaware, Claymont | Allied Chemical Corp. | Violation of emission std for sulfur oxides. | Notice of violation issued on 5/24/72. Order comply issued on 6/18/72.<br>Amended order issued on 6/18/74. | Commencing on 11/10/72 bimonthly progress reports have been submitted to EPA resulted in construction schedule with increments of progress, schedule is presently being complied with. Amended order issued to discontinue monthly reporting. |
| Delaware, Delaware City | Delmarva Power & Light Co.<br>Power Plant | Violation of sulfur oxide emission standard. | Notice of violation issued 3/6/72 Enforcement order issued 4/17/72. | Getty Oil (supplying high sulfur fuel to Delmarva) litigated the EPA order. Court upheld EPA in Getty Oil vs. Ruckelshaus (342 F. Suppl. 1006; 467 F. 2d. 349;1/15/73). Source is presently in compliance with emission std. |
| Delaware, Edge Moor | E.I. duPont de Nemours Co. Inc.<br>Sulfate Mfg. | Violation of particulate emission std. | Consent order issued 10/25/74. | |
| Maryland, Eastern Shore | Bayshore Foods,<br>Grain Dryer | Violation of opacity stds. | 12/28/73 - Notice of violation issued. | 1/24/73 - conference held<br>7/5/74 - draft consent order mailed to co.<br>Letter of intent received in December 1974. |
| Maryland, Sabillesville | Benchoffs Dump<br>Open Dump | Violation of particulate (open burning) std. | Consent order issued 10/10/74. | |
| Maryland, Emittsburg | Charles Wetzel Dump<br>Open Dump | Violation of particulate (open burning) std. | Consent order issued 10/10/74. | |
| Maryland, Thurmond | Fogels Dump<br>Open Dump | Violation of particulate (open burning) std. | Consent order issued 10/10/74. | |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Maryland, Bethesda | National Med. Center<br>Industrial Boiler and Incinerators | Violation of particulate emission std. | Consent agreement signed 12/1/74. | |
| Maryland, Silver Spring | Naval Ordinance Laboratory<br>Incinerator | Violation of particulate emission std. | Consent agreement signed 12/16/74. | |
| Maryland D.C. Area | PEPCO Chalk Point Station<br>Power Plant | Violation of sulfur oxide and particulate emission standard. | Notice of violation issued 6/04/74. | Conference held on 7/25/74. |
| Maryland D.C. Area | PEPCO Dickerson Station<br>Power Plant | Violation of sulfur oxide and Particulate emission std. | Notice of violation issued 6/01/74. | Conference held on |
| Maryland D.C. Area | PEPCO Morgantown Station<br>Power Plant | Violation of sulfur and particulate emission std. | Notice of violation issued 6/04/74. | Conference held on |
| Maryland, Eastern Shore | Perdue, Inc.<br>Grain Dryer | Violation of opacity stds. | 12/28/73 - Notice of violation issued. | 1/24/73 - conference held 7/5/74 draft consent orders mailed to co. Letter of intent received Dec. 1974. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Maryland, Eastern Shore | Snow Hill Grain<br>Grain Dryer | Violation of opacity standards | 12/28/73 - Notice of violation issued. | 1/24/73 - conference held 7/5/74 draft consent orders mailed to co. Letter of intent received Dec. 1974. |
| Maryland, Baltimore | Southern States Grain Coops.<br>Grain Dryer | Violation of opacity stds. | 12/28/73 - Notice of violation issued. | 1/24/73 - conference held 7/5/74 draft consent orders mailed to co. Letter of intent received Dec. 1974. |
| Maryland, Eastern Shore | Whittington Poultry Farms<br>Grain Dryer | Violation of opacity stds. | 12/28/73 - Notice of violation issued. | 1/24/73 - conference held 7/5/74 - draft consent mailed to co. Letter of intent received Dec. 1974. |
| Pennsylvania, Meadville | Abex Corp.<br>Smelting | Violation of particulate emission stds. | Notice of violation issued 5/1/74. Consent order signed 9/4/74. | In compliance with terms of order. |
| Pennsylvania, Evansville, | Allentown Portland Cement Co.<br>Cement Plant | Failure to respond s114 letter. | Order issued on 5/3/74. | Co. complied with order. |
| Pennsylvania, Delaware | Delaware County Municipal Incinerator<br>Incinerator | Violation of particulate emission stds. | Notice of violation issued 6/25/74. | Conference held on 6/19/74. Delco determining applicability of ESP as central technique. |
| Pennsylvania, Kittanning | Manor Minerals, Inc.<br>Mineral Processing | No response to s114 letter requesting information regarding facilities emissions. | Order issued 4/3/74. | Company complied with order. |
| Pennsylvania, Wyomissing | Metals Engineering, Inc.<br>Metallergy Shop | Failure to respond to s114 letter. | Order issued on 4/3/74. | Company complied with |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Pennsylvania, New Florence | Penn. Elec. Co. Conemaugh Station<br>Power Plant | Violation of particulates and sulfur oxide emission stds. | Notice of violation issued 6/19/74. Consent order issued 11/18/74. | Company is complying with terms of the order. |
| Pennsylvania, Erie | Penn. Elec. Co. Front St. Station<br>Power Plant | Violation of particulates and sulfur oxide emission stds | Notice of violation issued 6/19/74. Consent order issued 11/18/74. | Company is complying with terms of the order. |
| Pennsylvania, Homer City | Penn. Elec. Co. Homer City Station<br>Power Plant | Violation of particulates and sulfur oxide emission stds. | Notice of violation issued 6/19/74. Consent order issued 11/18/74. | Company is complying with terms of the order. |
| Pennsylvania, Shelocta | Penn. Elec. Co. Keystone Station<br>Power Plant | Violation of particulates and sulfur oxide emission stds. | Notice of violation issued 6/19/74. Consent order issued 11/18/74. | Company is complying with terms of the order. |
| Pennsylvania, Saxton | Penn. Elec. Co. Saxton Station<br>Power Plant | Violation of particulates and sulfur oxide emission stds. | Notice of violation issued 6/19/74. Consent order issued 11/18/74. | Company is complying with terms of the order. |
| Pennsylvania, Seward | Penn. Elec. Co. Seward Station<br>Power Plant | Violation of particulates and sulfur oxide emission stds. | Notice of violation issued 6/19/74. Consent order issued 11/18/74. | Company is complying with terms of the order. |
| Pennsylvania, Clearfield | Penn. Elec. Co. Shawville Station.<br>Power Plant | Violation of particulates and sulfur oxide emission stds. | Notice of violation issued 6/19/74. Consent order issued 11/18/74. | Company is complying with terms of the order. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Pennsylvania, Warren | Penn. Elec. Co. Warren Station<br>Power Plant | Violation of particulates and sulfur oxide emission stds. | Notice of violation issued 6/19/74. Consent order issued 11/18/74. | Company is complying with terms of the order. |
| Pennsylvania, Williamsburg | Penn. Elec. Co. Williamsburg Station<br>Power Plant | Violation of particulates and sulfur oxide emission stds. | Notice of violation issued 6/19/74. Consent order issued 11/18/74. | Company is complying with terms of the order. |
| Pennsylvania, Phila. | Philadelphia Electric Co. Comby Station<br>Power Plant | Violation of particulates and sulfur oxide emission stds. | Notice of violation issued 6/19/74. Consent order issued 11/18/74. | Company is complying with terms of the order. |
| Pennsylvania, Phila. | Philadelphia Electric Co. Eddystone Station<br>Power Plant | Violation of particulates and sulfur oxide emission stds. | Notice of violation issued 6/19/74. Consent order issued 11/18/74. | Company is complying with terms of the order. |
| Pennsylvania, Reading | Reading Gray Iron Casting,<br>Gray Iron Foundry | Failure to respond to s114 letter. | Order issued on 4/3/74. | Company responded to order on 5/15/74. |
| Pennsylvania, Clairton | U.S. Steel Clairton works<br>Coke Ovens | Violation of opacity and particulate emission stds. | Notice of violation issued 11/8/73.<br>Referred to U.S. Atty. for combustion stacks door leaks, & topside emission on 6/7/74.<br>Referred to U.S. Atty. for pushing sent on 7/11/74. | On 11/29/74. Honorable J.L. Miller stayed effect on subpeonas until 1/6/75. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Pennsylvania, Courtney | West Penn Power Co. Mitchell Station<br>Power Plant | Violation of particulate and sulfur oxide stds. | Notice of violation issued 9/13/73. | Conference held 12/13/74. |
| Virginia, Arlington | Arlington Cty. Incinerator<br>Sludge Incinerator | Violation of particulate emission stds. | Notice of violation sent on 3/14/74. Order to stack test issued 7/2/74. | Awaiting stack test results. |
| Virginia, Danville | Boise Cascade<br>Indust. Boiler | Violation of particulate emission stds. | Notice of violation issued 3/15/74. Enforcement order issued 6/7/74. | Company complied with first increment of order On 10/16/74 company notified EPA that it will shut down in January 1975 due to economic reasons. |
| Virginia, Danville | Brantly Generating Station<br>Power Plant | Violation of particulate emission limitation. | Notice of violation issued 6/4/74. | Conference held on 7/29/74. |
| Virginia, Richmond | Federal Paper Board Inc.<br>Industrial Boiler | Violation of particulate emission limits. | Notice of violation issued 4/17/74. | Awaiting stack test results. |
| Virginia, Alexandria | PEPCO Potomac River Station | Violation of opacity limitation. | Notice of violation issued 1/30/74. | Conference held 2/27/74. |
|  | Power Plant |  | Administrative order issued 6/25/74. | Meeting to discuss order with Co. scheduled for 7/25/74 |

# REGION IV

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Alabama, Tuscombia | TVA-Colbert Sta.<br>Power Plant | Violation of particulate emission std. | Notice of violation issued 12/4/74. | |
| Alabama, Stevenson | TVA-Widows Creek Station<br>Power Plant | Violation of particulate emission std. | Notice of violation issued 12/4/74. | |
| Florida, Pierce | Agrico. Chemical Co.<br>Rockdryers | Violated particulate std. | Notice of violation issued 8/26/74. | |
| Florida, Lakeland | Bordon Chemical Co.<br>Rock dryers | Violation of particulate emission std. | Notice of violation issued 8/30/74. | |
| Florida Bradley | Brewster Phosphate Co.<br>Rock Crushing | Violation of Federally approved compliance schedule for particulate emission std. | Notice of violation issued 8/26/74. Enforcement order issued 10/9/74. | |
| Florida, Joy Oil Field | Exxon Louisiana Land Corp.<br>Refinery | Violation of sulfur oxide emission std. | Notice of violation issued 9/13/74. | |
| Florida, Chatahoochie | Florida State Hosp. Industrial boiler | Violation of particulate emission std. | Notice of violation issued 8/27/74. | |
| Florida, Gibsonton | Gardinier Inc.<br>Phosphate rock dryers | Violation of particulate and sulfur oxide stds | Notice of violation issued 6/11/74. Admin. order for particulate issued 9/6/74. | |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Florida, Bartow | W. R. Grace<br>Phosphate rock dryers | Violation of Particulate and sulfur oxide emission stds. | Notice of violation issued 6/11/74. Admin. order issued 9/6/74. | |
| Florida Chatahoochie | Gulf Power Co.<br>Power plant | Violation of particulate and sulfur oxide stds. | Notice of violation issued 8/30/74. | |
| Florida, Linhaven | Gulf Power Co.<br>Power plant | Violation of particulate and sulfur oxide stds. | Notice of violation issued 8/30/74. | |
| Florida, Pensacola | Gulf Power Co.<br>Power Plant | Violation of particulate and sulfur oxide stds. | Notice of violation issued 8/30/74. | |
| Florida Palatka | Hudson Pulp & Paper Co.<br>Pulp and Paper Plant | Source missed 1st increment of State adopted. federally approved compliance schedule for sulfur oxide and particulate matter. | Notice of violation issued 12/20/73. Admin. order issued 1/21/74. | |
| Florida, Nichols | Mobile Chem. Co.<br>Phosphate rock dryers | Violation of Fla. PM and SO2 reg. | Notice of violation issued 6/11/74. Admin. order issued 9/6/74. | |
| Florida, White Springs | Occidental Chemical Co. | Violation of sulfur oxide std. | Notice of violation issued 8/26/74. | |
| Florida, Bartow | Swift Chemical Co.<br>Rock dryers | Violation of particulate emission std. | Notice of violation issued 9/13/74. | |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Florida, Tampa | Tampa Electric Co.<br>Power Plant | Violation of particulate and sulfur oxide emissions limitations. | Notice of violation issued 8/23/74. | |
| Florida, Bartow | U.S.S. Agrichemical Co.<br>Rock Dryers | Violates particulate std. | Notice of violation issued 8/26/74. | |
| Florida, Ft. Meade | U.S.S. Agrichemical Co.<br>Rock Dryers | Violates particulate std. | Notice of violation issued 8/26/74. | |
| Kentucky, Paradise | TVA-Paradise Sta.<br>Power Plant | Violation of particulate emission std. | Notice of violation issued 12/4/74. | |
| Kentucky, Paducah | TVA-Shawnee Sta.<br>Power Plant | Violation of particulate emission std. | Notice of violation issued 12/4/74. | |
| Mississippi, Jackson | Cook Construction Co.<br>Open burning | Violation of particulate emission std. | Notice of violation issued 11/29/74. | |
| Mississippi, Natchez | International Paper Co.<br>Pulp & Paper Mill | Violation of particulate emission std. | Notice of violation issued 9/24/74. | |
| Tennessee, Columbia | Monsanto Industries Chem. Co.<br>Rotary kilns | Violation of sulfur oxide emission stds. | Notice of violation issued 4/20/74. | |
| Tennessee Oak Ridge | TVA-Bull Run Sta.<br>Power Plant | Violation of particulate emission std. | Notice of violation issued 9/12/74. Admin. Order issued 12/4/74. | |
| Tennessee, Gallatin | TVA-Gallatin Sta.<br>Power Plant | Violation of particulate emission std. | Notice of violation issued 12/4/74. | |
| Tennessee, Waverly | TVA-Johnston Sta.<br>Power Plant | Violation of particulate emission std. | Notice of violation issued 12/4/74. | |
| Tennessee, Kingston | TVA-Kingston Sta.<br>Power Plant | Violation of particulate emission std. | Notice of violation issued 12/4/74. | |

## REGION V

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Illinois, Chicago | American Brick Company<br>Brick Kiln & Crusher | Violation of Ill. opacity and particulate emission standards. | Notice of violation issued 1/21/74. | State suit filed, no further Federal action at this time. |
| Illinois, Quincy | Celotex Corp.<br>Industrial Boilers | Violation particulate stds. | Consent order issued 11/20/74. | |
| Illinois East Peoria | Central Illinois Light Co.<br>Power Plant | Violation of Federal compliance schedule for Illinois particulate stds. | Notice of violation issued 12/20/73. | Conference held 8/1/74. Draft consent order sent to company for comment. |
| Illinois, Bartonville | Central Illinois Light Co. Edward Station Power Plant | Violation of sulfur oxide std & Federal compli- | Notice of violation issued 5/31/74. | Conference held 8/1/74. Draft consent order sent to Co. for comment. |
| Illinois, Wood River | Clark Oil Refinery<br>Refinery | FCC unit violates particulate, hydrocarbon & carbon monoxide stds. | Notice of violation issued 10/24/74. | Conference held 11/19/74. Awaiting decision of Ill. APCB on new carbon monoxide stds. |
| Illinois, Granite City | Granite City Steel Co.<br>Coke ovens | Violation of particulate std. and federal compliance schedule for coke ovens. | Notice of violation issued 3/13/74. | State action anticipated, further EPA action deferred. |
| Illinois, Blue Island | Illinois Brick Company<br>Brick Mfg. | Kilns violate particulate std. | Notice of violation issued 3/4/74. | Complaint field before Illinois Pollution Control Board, further Federal action deferred pending State action. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Illinois, Alton | Illinois Power Co.<br>Power Plant | Violation of sulfur oxides stds. | Notice of violation issued 9/3/74. | Conference held 10/10/74. |
| Illinois, Chicago | Interlake, Inc.<br>Coke ovens | Coke oven (pushing & quenching) Operating violate particulate stds. | Notice of violation issued 8/16/74. | Conference held 9/27/74. Co. will submit data in January on new control eqpt. |
| Illinois, Chicago | International Harvester Co.<br>Coke ovens | Violation of federal compliance schedule for coke oven quenching and pushing | Notice of violation issued 11/29/73. Consent order issued 4/11/74.. | In compliance with terms of order. terms of order. |
| Illinois, Thornton | Marblehead Lime Company<br>Quarry | Violaton of particulate std. | Notice of violation issued 3/19/74. Order issued 7/3/74. | In compliance with terms of order. |
| Illinois, Sterling | Northwestern Steel & Wire<br>Steel Mfg. | Electric arc furnaces violate particulate stds. | Notice of violation issued 8/2/74. | Conference held 8/28/74. Meeting in mid-December to discuss compliance schedule. |
| Illinois, Chicago | Republic Steel Co.<br>Steel Mfg. | Melt shop & Elec. arc furnaces violate particulate stds. | Notice of violation issued 8/28/74. | Conference held 9/27/74. |
| Illinois, Chicago | Republic Steel Corp.<br>Steel Mfg. | Violation of federal compliance schedule for coke oven pushing and quenching. | Notice of violation issued 11/29/73. Order issued 4/11/74. | In compliance with with terms of order. |
| Illinois, Chicago | Sheffield Foundry<br>Foundry | Cupala violates particulates emissions stds. | Notice of violation issued 10/24/74. | Now in compliance. No further Federal action. |
| Illinois, Skokie | Skokie, Village of<br>Municipal Incinerator | Violation of particulate matter emission std. | Notice of violation issued 2/20/74. Consent order issued 4/2/74. | Presently in compliance with terms of order |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Illinois, Lawrenceville | Texaco Refinery Inc.<br>Refinery | Violation of carbon monoxide and hydrocarbon stds. by storage tanks. | Notice of violation issued 3/26/74.<br>Order issued 7/3/74. | Presently in compliance with terms of order. |
| Illinois, Cahokia | Union Elec. Co.<br>Power Plant | Violation of particulate & sulfur oxides stds. | Notice of violation issued 10/23/74. | Conference held 12/5/74. Draft order being prepared. |
| Illinois, Venice | Union Elec. Co.<br>Power Plant | Violation of particulate & sulfur oxides stds. | Notice of violation issued 10/23/74. | Conference held 12/5/74. Draft Order being prepared. |
| Illinois, Chicago | U.S. Steel Corp. South Works<br>Steel Mfg. | Violation of particulate emission stds. | Notice of violation issued 9/5/74. | Conference held 9/27/74. Meeting mid-January to discuss Consent Order. |
| Illinois, Elgin | Woodruff Edwards, Inc.<br>Foundry | Coupola violates carbon monoxide stds. | Notice of violation issued 6/7/74. | Awaiting results of stack test. |
| Indiana, Newburg | ALCOA<br>Aluminum Smelter | Violation of particulate stds. | Notice of violation issued 1/4/74. | Now in compliance with terms of state order. |
| Indiana, Munster | American Brick Co.<br>Brick Kiln & Crusher | Violation of particulate and opacity standards. | Notice of violation issued 1/21/74. | Awaiting results of stack test. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Indiana, Whiting | American Oil Co.<br>Oil Refinery | Violation of sulfur oxide and opacity standards. | Notice of violation issued 9/10/73. | Presently on enforceable state order, further EPA action obviated. |
| Indiana, Noblesville | Hamilton Cty. Asphalt, Inc.<br>Asphaltic Concrete | Violation of particulate matter emission standard. | Notice of violation issued 11/19/73. Admin. order issued 1/28/74. | Presently in compliance with terms of order. |
| Indiana, East Chicago | Atlantic Richfield Corp.<br>Refinery | Violation of sulfur oxide stds. | Notice of violation issued 9/10/73. | Source in compliance. |
| Indiana, Chesterfield | Bethlehem Steel Corp., Burns Harbor Plant<br>Steel plant | Violation of particulate (opacity and process weight stds. | Notice of violation issued 7/11/73 | Coke ovens placed on satisfactory state schedule. Other points of emission achieved compliance. |
| Indiana, East Chicago | Blaw-Know Foundry<br>Foundry | Open hearth furnace violates particulate stds. | Notice of violation issued 1/21/74. Administrative order issued 4/15/74. | Presently in compliance with terms of order. |
| Indiana, Terre Haute | Bloomington<br>Ammonium Nitrate Process. | Violation of opaciculate matter emission standards. | Notice of violation issued 10/9/73, Admin. order issued 1/31/74. | Presently in compliance with terms of order. |
| Indiana, Bloomington | Bloomington Crushed Stone Co.<br>Quarry | Violation of opacity and particulate matter emission standards. | Notice of violation issued 10/31/73. | Presently in compliance with regulation |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Indiana Cannellon | Can-Tex Industries, Inc.<br>Rock Crushing | Violation of particulate matter emission standard. | Notice of violation issued 10/17/73 Admin. order issued 1/24/74. | Presently in compliance with terms of order. |
| Indiana Largo | Celotex Corporation<br>Indust. Boilers | Violation of particulate matter emission standard. | Notice of violation issued 1/23/74. Admin. order issued 3/26/74. | Presently in compliance with order. |
| Indiana Indianapolis | Central Soya Co.<br>Indust. Boilers | Violation of particulate matter emission standard. | Notice of violation issued 10/12/73. | Presently in compliance |
| Indiana, Cayuga | Colonial Brick Corp.<br>Brick Mfg. | Violation of particulate emission standard. | Notice of violation issued 12/4/73. | |
| Indiana, Wabash | Container Corp. of America<br>Industrial Boilers | Violation of particulate and sulfur oxide stds. | Notice of violation issued 10/9/73. | State schedule adopted, further EPA action obviated. |
| Indiana, Richmond | Dana Corp.<br>Foundry | Cupolas violate opacity and particulate stds. | Notice of violation issued 10/30/73. | Presently in compliance. |
| Indiana, Terre Haute | J.W. Davis Co.<br>Boilers | Violation of particulate matter and opacity emission standards. | Notice of violation issued 4/26/74; Admin. order issued 6/15/74. | Presently in compliance with terms of order. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Indiana, Indianapolis | Ford Motor Co.<br>Boilers paint spraying, drying oven & degreaser. | Violation of hydrocarbon and particulate matter stds. | Notice of violation issued 6/11/74. Consent order for particulate issued 10/11/74. | In compliance with order for boilers. Action for other sources pending legal interpretation of HC stds. |
| Indiana, Marion | Foster Forbes Glass Co.<br>Glass Mfg. Indust. Boilers | Source refused info. requested in section 114 letter. | Admin. order issued 11/21/73. | Awaiting stack test. |
| | | Violation of particulate matter emission standard. | Notice of violation issued 1/2/74. | |
| Indiana, Petersburg | Indiana Rural Elec. Coop., Inc.<br>Power Plant | Violation of opacity and particulate standards. | Consent order issued 7/10/74. | In compliance with terms of consent order. |
| Indiana, Bloomington | Indiana University<br>Power Plant | Violation of particulate standard. | Notice of violation issued 10/24/73 admin. order issued 1/8/74. | Presently in compliance with terms of order |
| Indiana, East Chicago | Inland Steel Co.<br>Steel Mill | Violation of opacity emission standard. | Notice of violation issued 7/18/73. | At present time, no further Federal action anticipated since cited source is on enforceable State schedule. |
| Indiana, Indianapolis | International Harvest Co.<br>Indust. Boiler | Violation of particulate matter emission standard. | Notice of Violation issued 10/26/73. | In compliance with regulations. |
| Indiana, Richmond | Johns-Manville Corp.<br>Glass Mfg. | Violation of particulate matter emission standard. Forming lines violate particulate std. | Notice of violation issued 6/26/74. Notice of violation issued 9/16/74. | Order to be issued 1/1/75. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Indiana, Brownstown | Kieffer Paper Mill<br>Boilers | Violation of particulate matter emission standard. | Notice of violation issued 10/12/73. | Now on enforceable State schedule. |
| Indiana, Mitchell | Lehigh Cement Co.<br>Kilns | Violation of particulate matter emission standards. | Notice of violation issued 11/26/73. Admin. order issued 1/25/74. | Presently in compliance with terms of order. |
| Indiana, Mt. Summit | Magaw Construction Inc.<br>Asphalt Plant | Violation of opacity and particulate matter emission standards. | Notice of violation issued 12/19/73. | Presently in compliance. |
| Indiana, Muncie | Magaw Construction Inc.<br>Asphalt Plant | Violation of opacty and particulate matter emission standards. | Notice of violation issued 12/9/73. | Presently in compliance |
| Indiana, Richmond | Magaw Construction Inc.<br>Asphalt Plant | Violation of opacity and particulate matter emission standards. | Notice of violation issued 12/19/73. | Presently in compliance |
| Indiana, East Chicago | Mobil Oil Corp.<br>Refinery | Violation of opacity & sulfur oxide limitations. | Notice of violation issued 9/10/73. | Source in compliance. |
| Indiana, Derby | Mulzer Crushed Stone Company<br>Quarry | Violation of particulate matter and opacity standards. | Notice of violation issued 2/7/74. | Presently in compliance |
| Indiana, Indianapolis | Nat'l Starch & Chem. Corp.<br>Industrial Boiler | Violation of particulate matter and sulfur oxide emission standard. | Notice of violation issued 11/19/73 admin. order issued 2/13/74. | Presently in compliance with terms of order. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Indiana, Gary Vicinity | NIPSCO<br>Power Plant | Violation of sulfur oxide emission standard. | Notice of violation issued 9/13/73. | Administrative order pending Seventh Circuit decision. |
| Indiana, Indianapolis | Phillips Petro. Company<br>Refinery | Violation of hydrocarbon emission standards. | Notice of violation issued 5/30/74. | EPA action pending legal interpretation of HC reg. |
| Indiana, Terre Haute | Public Service Co. of Ind. Wabash Sta.<br>Power Plant | Violation of sulfur oxide emission standard. | Notice of violation sued 9/13/73. | |
| Indiana, Indianopolis | RCA Corp.<br>Electronics Manufacturer | Violation of hydrocarbon emission standard. | Notice of violation issued 7/1/74. | |
| Indiana, Indianapolis | Rock Island Refining Corp.<br>Refinery | Violation of hydrocarbon and carbon monoxide emission standards. | Notice of violation issued 3/13/74. | In compliance with State enforcement order. |
| Indiana, Sellersburg | Sellersburg Stone Company<br>Rock Crushing | Violation of opacity and particulate matter emission standards. | Notice of violation issued 1/10/74. | Achieved compliance with regulations. |
| Indiana, Hammond | Stauffer Chem. Company<br>Sulfuric acid Manufacturer | Violation of sulfur dioxide emission | Notice of violation issued 1/10/74. | In compliance with terms of order issued by local agency. |
| Indiana, LaPorte | Teledyne Casting Service<br>Foundry | Cupola violates particulate matter emission standard. | Notice of violation issued 4/6/74. | Evaluating stack test report. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Indiana, East Chicago | U.S. Gypsum Co.<br>Milling | Violation of Particulate matter and opacity standards. | Notice of violation issued 10/5/73. | On enforceable State schedule. |
| Indiana, Indianapolis | Union Carbide Corp.<br>Industrial Boiler | Violation of particulate matter emission standard. | Notice of violation issued 5/29/74. | On enforceable State Schedule |
| Indiana, Shoals | U.S. Gypsum<br>Plaster Mfg. | Violation of particulate matter emission standard. | Notice of violation issued 10/5/73. | On enforceable State schedule |
| Indiana, Wabash | U.S. Gypsum Co.<br>Mineral wool cupolas | Violation of particulate matter std. | Notice of violation sued on 10/5/73. | On enforceable State Schedule |
| Indiana, Gary | U.S. Steel Corp. Gary Works<br>Steel Mill, Cement Plant | Operation of a steel mill with cement production facilities (Universal Atlas Co.) in violation of opacity and particulate emission standards. | Notice of violation issued 4/18/73. Order issued June 22, 1973. | U. S. Steel brought suit in the U.S. District Court, Hammond, Ind. to void the EPA order. The Court issued a consent decree on 11/21/74, establishing a compliance schedule for the facility. The first increment of progress requires the closing of open hearth furnace # 4 in January 1975. |
| Indiana, Wabash | Wabash Smelting Corp.<br>Aluminum Plant | Violation of opacity standards. | Notice of violation issued 3/28/73. Order issued 5/30/73. | Presently in compliance with terms of the order. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Indiana, Wabash | Wabash Smelting, Inc.<br>Smelter | Violation of particulate matter and opacity standards. | Notice of violation issued 6/27/74. | Conference held 7/22/74. |
| Indiana, East Chicago | Youngstown Sheet and Tube Co.<br>Steel Mill | Violation of particulate and opacity standards. | Notice of violation issued 7/18/73. | On enforceable State order. |
| Michigan, Hillsdale | Hillsdale Foundry | Violation of particulate matter emission standard. | Notice of violation issued 4/9/74. | State legal action has been initiated to enforce schedule. |
| Minnesota, International Falls | Boise Cascade Corp.<br>Kraft, pulp and paper mill. | Violation of particulate matter emission standard. | Notice of violation issued 4/18/74. Consent order issued on 5/20/74. | Presently in compliance with terms of order. |
| Minnesota, Brainerd | Burlington Northern Inc.<br>Ind. Boilers | Violation of particulate matter emission standard. | Notice of violation issued 2/20/74. | State order issued 6/26/74. |
| Minnesota, Red Wing | Conwed Corp.<br>Foundry | Cupola & blow chambers violate sion standards. particulate stds. | Notice of violation issued 2/20/74. | On enforceable State order. |
| Minnesota, Minneapolis | L. Dreyfus Corp.<br>Grain Handling | Marquette grain elevator, rail dump, storage bins violate particulate stds. | Notice of violation issued 8/8/74. Enforcement Order issued 11/15/74. | |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Minnesota, Buhl | Public Utilities Commission<br>Power Plant | Violation of particulate stds. | Notice of violation issued 7/25/74. | State handling conversion of customers to fuel oil. Will continue to monitor. |
| Minnesota, Springfield | Public Utilities Commission<br>Power Plants | Violation of particulate stds. | Notice of violation issued 9/4/74. | Enter agreement with State for compliance early 1976. |
| Minnesota, Collegeville | St. John's Univ.<br>Industrial Boiler | Violation of particulate emission standard. | Notice of violation issued 2/20/74. | Evaluating stack test report |
| Minnesota, Duluth | U.S. Steel-South Works<br>Coke Ovens | Coke ovens violate particulate stds. | Notice of violation issued 5/2/74. | State filed suit 10/7/74. Further federal action deferred. |
| Minnesota, City of Two Harbors | Water & Light Plant<br>Power Plant | Boiler #2 violates particulate stds. | Notice of violation issued 11/5/74. | |
| Ohio, Portsmouth | Empire-Detroit Steel Steel Co.<br>Steel Mfg. | Open hearth furnace violate particulate stds. | Notice of violation issued 11/1/74. | Conference held 12/5/74. |
| Ohio, Cleveland | Jones & Laughlin Steel Corp.<br>Steel Mfg. | Sinter plant violates particulate stds. | Notice of violation issued 11/29/74. | Conference held 12/2/74. |
| Ohio, Norwalk | Ohio Liquid Disposal, Inc.<br>Incinerator | Violation of particulate std. | Notice of violation issued 9/6/74. | State initiated action; Co. now out of business. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Ohio Canton | Republic Steel Corp.<br>Steel Mfg. | Elec arc furnace violate particulate stds. | Notice of violation issued 9/27/74. | Conference held 11/8/74. Awaiting policy decision on pending 307 challenge. |
| Ohio, Cleveland | Republic Steel Corp.<br>Steel Mfg. | Sinter Plant, BOF, OHF, & Coke Batteries violate particulate stds. | Notice of violation issued 9/29/74. | Conference held 11/8/74. |
| Ohio, Massillon | Republic Steel Corp.<br>Coke ovens | Coke Batteries violate particulate stds. | Notice of violation issued 9/27/74. | Conference held 11/8/74. |
| Ohio, Alliance | Transue & Wms.<br>Foundry Industrial boilers | Forging operation & boilers violate particulate stds. | Notice of violation issued 8/15/74. | Control program for boiler house being evaluated. |
| Wisconsin, Whitewater | Alpha Cast, Inc.<br>Foundry | Violation of particulate stds. | Notice of violation issued 9/25/74. | Conference held 10/25/74. Co. to submit control plans in mid-December. |
| Wisconsin, Hixton | Husky Industries, Inc.<br>Charcoal Mfr. | Violation of particulate matter emission standard. | Notice of violation issued 4/3/74. | State order issued 6/28/74. |
| Wisconsin, Milwaukee | Miller Brewing Co.<br>Brewery | Violation of particulate matter emission. Federal compliance schedule for hydrocarbon emission standard. | Notice of violation issued 4/3/74. Consent order issued 6/6/74. | Incompliance with terms of consent order. |
| Wisconsin, Milwaukee | Milwaukee Solvay Coke Co.<br>Coke Ovens | Violation of particulate matter opacity and hydrocarbon emission standards. | Notice of violation issued 1/9/74. | State order issued 6/11/74. |
| Wisconsin, Milwaukee | Pabst Brewing Co.<br>Brewery | Violation of particulate matter emission standard. | Notice of violation issued 4/3/74. | State order issued 6/20/74. |

## REGION VI

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Louisiana, Shreveport | Bird & Son Inc. | Violation of particulate matter (Fugitive dust) reg. | Notice of violation issued 11/11/74. | Conference waived negotiating agreed order. |
| Louisiana, Elizabeth | Calcasieu Paper Co. Inc.<br>Indus. boilers, pulp mill | Violation of opacity and particulate matter regs. | Notice of violation issued 11/11/74. | Conference scheduled for 12/17/74. |
| Louisiana, Pollock | Carroll W. Maxwell Co., Inc.<br>Conical Incinerator | Violation of opacity and incinerator regs. | Notice of violation issued 11/29/74. | Conference requested not yet scheduled. |
| Louisiana, Tallulah | Chicago Mill & Lumber Co.<br>Indus. Boiler | Violation of particulate matter regs. | Notice of violation issued 11/21/74. | Conference waived, compliance to be reverified. |
| Louisiana, Dodson | Hunt Lumber Co., Inc.<br>Conical Incinerator | Violaton of opacity particulate matter and open burning regulations. | Notice of violation issued 6/27/74. | |
| Louisiana, Baton Rouge | Ideal Cement<br>Cement Kilns | Violation of particulate matter regs. | Notice of violation issued 8/12/74. | Conference held 11/21/74. Order being prepared. |
| Louisiana, Larose | LaFourche Parish Police Jury<br>Open burning | Violaton of open burning reg. | Notice of violation issued 10/3/74. | Conference waived, source reports compliance, inspection to be conducted. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Louisiana, Florien | Vancover Plywood Co., Inc., Florien Plywood<br>Conical Incinerator | Violation of opacity and incinerator regs. | Notice of violation issued 9/30/74. | Conference held 11/19/74. Order being prepared. |
| Louisiana, Dodson | Willamette Ind., Inc., Louisiana Plywood Corp.<br>Conical Incinerator | Violation of opacity, incinerator, and open burning regs. | Notice of violation issued 9/30/74. | Conference waived. Consent order being prepared.<br>order sent to DSSE on 12/10/74. |

## REGION VII

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Iowa<br>Clinton | Clinton Corn Processing Co.<br>Grain Dryers | Violation of particulate emission standard | Notice of violation issued 6/3/74. Enforcement order issued 7/31/74. | Presently complying with terms of order. |
| Iowa,<br>Ft. Dodge | Georgia Pacific Corp.<br>Wallboard Mfg. | Violation of particulate and opacity stds. | Notice of violation issued 7/11/74. Enforcement order issued 10/21/74. | Source presently in compliance with terms of order. |
| Kansas,<br>Kansas City | Erman Corp.<br>Railroad Car Salvage | Violation of open burning (particulate matter) reg. | Notice of violation issued 5/3/74 | Open burning ceased, source now in compliance. |
| Missouri,<br>N. Kansas City | ADM Milling Co.<br>Grain Mill | Violation of particulate emission standard. | Notice of violation issued 1/14/74. | Source is now meeting terms of EPA approved compliance schedule. |
| Missouri,<br>Affton | Alpha Portland Cement<br>Cement Mfg. | Clinker cooler violates particulate std. | Notice of violation issued 9/28/73. | Source is now meeting terms of EPA approved State compliance schedule, further EPA action deferred. |
| Missouri,<br>Glover | Asarco<br>Lead Smelter | Violation of sulfur oxide emission standard | Notice of violation issued 6/2/73. Admin. order issued 10/23/73. | Order has been rescinded mooting present litigation. Entering into stipulation with company to resolve case. |
| Missouri,<br>Jefferson City | Central Electric Pwr Co-op.<br>Power Plant | Co. refused to submit data required by section 114 letter. | Admin. order issued 5/2/73. | Company complied with order. |
| Missouri<br>Kansas City | Centropolis Crusher Inc.<br>Rock Crushing | Co. refused to submit data required by section 114 letter. | Admin. order issued 6/6/73. | Company complied with order. |
| Missouri,<br>Columbia | Columbia Water & Light Dept.<br>Power plant | Source did not test boilers 6 & 7 as required in Section 114 letter. | Admin. order issued 8/8/73. | Information received, boilers 6 & 7 in compliance. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Missouri, Louisiana | Hercules, Inc.<br>Fertilizer Mfr. | In violation of particulate matter emissions stds. | Notice of violation issued 5/16/73. Order issued 10/15/73. | Presently in compliance with terms of order. |
| Missouri, Lebanon | Independent Stave Co., Inc.<br>Industrial Boilers | Violation of particulate matter (process emissions) and opacity stds. | Notices of violation issued 7/9/73 and 10/10/73. Enforcement order issued 10/18/73. Criminal conviction returned on 11/20/74 for violating order. | Awaiting sentencing. |
| Missouri, Hannibal | Marion County Milling<br>Grain Dryers | Violation of opacity standard | Notice of violation issued 6/16/74. | Source presently complying with acceptable State compliance schedule |
| Missouri, Parkville | Mid-Continent Asphalt and Paving Co.<br>Asphalt Mfg. | Violation of opacity standard | Notice of violation issued 10/19/73. Admin. order issued 4/25/74. | Source has completed installation of control equipment and is in compliance. |
| Missouri, St. Louis County | Union Electric Co. Labadie Station<br>Power Plant | Violation of sulfur oxide emission limitation | Notice of violation issued 5/31/74. | Company filed suit under section 307 of the CAA against EPA for review of Missouri SIP. |
| Missouri, St. Louis County | Union Electric Co. Meramec Station<br>Power Plant | Violation of sulfur oxide emission limitation. | Notice of violation issued 5/31/74. | Company filed suit under section 307 of the CAA against EPA for review of Missouri SIP. |
| Missouri, St. Louis County | Union Electric Co. Sioux Station<br>Power Plants | Violation of sulfur oxide emission limitations | Notice of violation issued 5/31/74. | Company filed suit under section 307 of the CAA against EPA for review of Missouri SIP. |
| Missouri, Hannibal | Universal Atlas Cement Co.<br>Cement Mfr. | Co. refused to submit data required by section 114 letter. | Adminis. Order issued 10/1/73. | Company complied with order. |
| Missouri, Bonne Terre | Valley Mineral Prod. Corp.<br>Rock Crushing | Violation of particulate and opacity stds. | Notice of violation issued 1/14/74. | On acceptable State compliance schedule. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Nebraska, Beatrice | Dempster Industries Inc.<br>Foundry | Cupola violates EPA promulgated particulate matter emission Std. | Admin. order issued 7/2/74 | Company meeting requirements of order. |
| Nebraska, Bellevue | Nebraska Public Power Kramer Station<br>Power Plant | Violation of emission limitations for particulates | Notice of violation issued 2/4/74.<br>Admin. order issued 3/14/74. | Source complying with terms of order. |

## REGION VIII

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Colorado, Pueblo | CF&I Steel Corp.<br>Steel Mill | Violation of opacity std. | Notices of violation issued 5/8,15,17 and 6/6/74. Orders issued 8/27/74 and 10/17/74. | Company complying with terms of order. |
| Utah, Salt Lake City | Concrete Products Co.<br>Cement Mfg. | Violation of opacity std | Notice of violation issued 8/28/74. | In compliance. Ceased operation. |
| Utah, Woods Cross | Crown Refining Co.<br>Refinery | Violation of SIP new source review. | Notice of violation issued 5/6/74. Order issued 7/26/74. | Complying with order Plant production unit closed. |
| Utah, Salt Lake City | W. B. Gardner | Violation of opacity std. | Notice of violation issued 8-23-74 | Presently in compliance. |
| Utah, Salt Lake City | Granite Mill and Fixture Co.<br>Rock Crushing | Violation of opacity standard. | Notice of violation issued 6/20/74. | Presently in compliance |
| Utah, Woods Cross | Lloyd A. Fry Roofing Co.<br>Roofing Mfg. | Violation of opacity std. | Notice of violation issued 1/23/74. | EPA action pending outcome of State administrative hearing determination. |
| Utah, Salt Lake City | Utah Sand & Gravel<br>Rock Crushing | Violation of opacity std. | Notice of violation issued 6/20/74. | Conference held 8/7/74. No further violations noted. Requesting improvement of O&M Plan. |
| Utah, Salt Lake City | Western States Engineering & Milling | Violation of opacity standard | Notice of violation issued 8/6/74. | In compliance. |
| Wyoming, Sundance | Roberts Construction Company<br>Quarry | Violation of ambient air std for total suspended particulates as provided in Wyoming SIP. | Notice of violation issued 8/16/73. Order issued 9/28/73. | Presently in compliance with terms of order. |

## REGION IX

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Arizona Benson | Apache Powder Co.<br>Nitric acid plant and open burning. | Violation of opacity open burning, & nitrogen oxide emission standards. | Notice of violation issued 11/13/73. Order issued 2/13/74. | Presently in compliance. |
| Arizona, Mineral Park | Duval Corp.<br>Mining, ore roasting | Violation of sulfur oxide emission stds. | Two notices of violation issued 10/7/74. | State to hold hearing 1/9/75. |
| Arizona, Payson | Kaibab Industries<br>Incinerators | Violation of opacity standards. | Notice of violation issued 7/24/73. Admin. order issued 9/26/73. | Achieved compliance 1/10/74. |
| Arizona, Douglas | Phelps Dodge Corp.<br>Copper Smelter | Violation of opacity & particulate matter emission standards. | Notice of violation issued 3/27/74; Admin. order issued 6/6/74, ammended 11/12/74. | Presently employing with terms of order. |
| Arizona, Page | Salt River Navajo Plant<br>Power Plant | Violation of Federally promulgated compliance schedule for particulate matter. | Notice of violation issued 6/10/74. Order issued 9/18/74. | Presently employing with terms of order. |
| Arizona, Snowflake | Western Moulding Co. Industries<br>Incinerators | Violation of opacity standards. | Notice of violation issued 7/24/73. | Placed on State schedule. Final compliance verified 5/8/74. |
| Arizona, Snowflake | Western Pine Inc.<br>Incinerators | Violation of opacity standards. | Notice of violation issued 7/24/73. | Placed on state compliance schedule. Achieved final compliance 8/26/74. |
| California, Richmond | Allied Chem. Corp,<br>Sulfuric Acid Plant | Violation of sulfur oxide emission standard. | Notice of violation issued 7/18/74. | EPA is disapproving existing regs. New regs to be promulgated. |
| California, North Hollywood | ALCO Gravure<br>Printing Co. | Violation of Hydrocarbon emission standard. | Notice of violation issued 4/26/74. Order issued 10/16/74. | Presently complying with terms of order. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| California, Azuza | Avery Label Co.<br>Printing | Violation of hydrocarbon stds. | Consent order issued 8/30/74. | Source complying with terms of order. |
| California, Brawley | Batley-Janss Enterprise<br>Alfalfa Mill | Violation of particulate and opacity emission standards. | Notice of violation issued 12/14/73 | In compliance (source shutdown). |
| California, Cloverdale | Cloverdale Plywood Co. (Fibreboard Corp.)<br>Incinerator | Violation of opacity standards. | Notice of violation issued 8/10/73. Admin. order issued 12/21/73. | Order expired 7/1/74. Compliance status will be verified. |
| California, Long Beach | Dept. of Water & Power<br>Power Plant | Violation of nitrogen oxide emission | Consent order issued 7/9/74. | Source is late in meeting some increments of progress while ahead in others. |
| California, Vernon | Fibreboard Corp.<br>Incinerator | Violation of opacity standard. | Notice of violation issued 3/11/73. Admin. order issued 12/21/73. | Achieved final compliance 7/8/74. |
| California, Cloverdale | G&R Lumber Co.<br>Incinerator | Violation of opacity standards. | Notice of violation issued 8/10/73. Admin. order issued 12/20/73. | Achieved final compliance. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| California, South Gate | Gen. Motors Corp<br>Auto Mfr. | Failure to submit a compliance schedule for hydrocarbon emission standards. | Consent order issued 6/3/74. | Achieved final compliance 8/5/74. |
| California, Fort Bragg | Georgia Pacific Corp.<br>Incinerator | Violation of opacity standard. | Notice of violation issued 8/10/73. Admin. order issued 12/20/73. | Achieved final compliance 7/13/74. |
| California, Los Angeles | Gravure W. Printing Co.<br>Printing | Violation of increments of progress of schedule to meet hydrocarbon emission standard. | Notice of violation issued 5/10/74. Order issued 10/16/74. | APCD also adopted enforceable compliance schedule. Source is presently complying with terms of schedules. |
| California, Fontana | Kaiser Steel Corp.<br>Steel Mill | Violation of opacity, sulfur oxide emission standards. | Notice of violation issued 8/7/73; consent order issued 6/11/74, amended 11/11/74. | Presently in compliance with terms of order. |
| California, Covelo | Louisiana Pacific Corp.<br>Incinerator | Violation of opacity standards. | Notice of violation issued 8/10/73 Admin. orders issued 12/20/73. | Achieved final compliance 5/1/74. |
| California, Fort Bragg | Louisiana Pacific Co.<br>Incinerator | Violation of opacity standard. | Notice of violation issued 8/10/73. Admin. order issued 12/20/73. | Achieved final compliance 5/14/74. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| California, Calpella | Masonite Corp.,<br>Incinerator | Violation of opacity standards. | Notice of violation issued 8/10/73. Admin. orders issued 12/20/73. | Achieved final compliance 6/1/74. |
| California, Cloverdale | Masonite Corp.<br>Incinerator | Violation of opacity std. | Notice of violation issued 8/10/73. Admin. order issued 12/20/73. | Achieved final compliance 6/27/74. |
| California, Monolith, | Monolith Portland Cement Plant<br>Cement Kilns | Violation of opacity and particulate emission standards. | Notice of violation issued 11/20/73; admin. order issued 5/10/74. | Presently in compliance with terms of order. |
| California, Martinez | Monsanto-Avon Plant<br>Indus. Boilers | Violation of sulfur oxide emission std. | Notice of violation issued 7/18/74. | Conference held 8/29/74. EPA is disapproving reg., new regs to be promulgated by EPA. |
| California, Martinez | Phillips Petro. Co. - Avon Plant<br>Refinery | Violation of sulfur oxide emission std. | Notice of violation issued 7/18/74. | Conference held 8/29/74. EPA is disapproving reg., new regs to be promulgated by EPA. |
| California, Ukiah | Redwood Coast Lumber Co.<br>Incinerator | Violation of opacity standard reg. | Notice of violation issued 8/10/73. Admin. order issued 12/21/73. | Achieved final compliance 7/8/74. |
| California, Anderson | Simpson Lee Paper Co.<br>Boiler | Violation of opacity particulate and sulfur oxide (TRS) emission standard. | Notice of violation issued 3/21/74. Admin. order issued 4/9/74. | Presently in compliance with terms of order. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| California, El Segundo | Standard Oil of Calif.<br>Oil Refinery | Violation of Calif. review of new sources and modifications regs. | Notice of violation issued 1/31/74. Admin order issued 3/5/74. | Achieved final compliance 8/12/74. |
| California, Richmond | Standard Oil of Calif. | Violation of sulfur oxide emission standard. | Notice of violation issued 7/10/74. | Conference held 8/13/74. EPA is disapproving regulation; will promulgate new requirements. |
| California, Carson | Texaco, Inc.<br>Sulfur Recovery Plant | Violation of sulfur oxide emission standards. | Notice of violation issued 2/22/74; admin. order issued 5/9/74. | Achieved final compliance 11/5/74. |
| California, Kern Cty. | U.S. Borox<br>Mining | Violation of opacity std. | Notice of violation issued 10/10/74. | Conference held 12/9/74. U. S. Borax to submit compliance schedule to EPA. |
| California, Los Angeles | Uniroyal, Inc.<br>Rubber Mfr. | Failure to submit approvable compliance schedule pursuant to Federally promulgated regulation. | Notice of violation issued 3/11/74; consent order issued 6/18/74. | Complying with terms of order. |
| Hawaii, Halaula | Kohala Corp. Sugar Mill<br>Industrial Boiler | Violation of opacity and particulate matter emission standards. | Consent order issued 7/16/74. | |
| Nevada, Gabbs | Basic Industries<br>Quarry Mill | Violation of particulate & opacity emission stds. | Notice of violation issued 5/2/74. | Conference held 6/13/74. State adopted revised reg & placed source on compliance. schedule 11/8/74. |
| Nevada, S. Calif. | S. Calif. Edison<br>Power Plant | Violation of opacity and sulfur oxide emission stds. | Notice of violation issued 7/25/73; order issued 11/1/73, ammended 9/18/74. | Presently in compliance with terms of order |

## REGION X

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Idaho<br>Pocatello | FMC Corp.<br>Phosphorus Mfg. | Cooler #1 violates particulate Stds. | Notice of violation issued 3/8/74. Order issued 11/21/74. | |
| Idaho<br>Lewiston | Potlatch Corp.<br>Kraft Pulp Mill Indust. Boilers | Violation of opacity and particulate emission stds. | Notice of violation issued 2/8/74. Order issued 4/8/74. | Presently in compliance with terms of order. |
| Washington,<br>Connell | Connell, City of<br>Open burning | Violation of open burning (Particulate) Stds. | Notice of violation issued 9/21/73. Admin. order issued 12/11/73. Amended order issued 9/19/74. | In compliance with order. |
| Washington,<br>Dayton | Dayton, City of<br>Open burning | Violation of open burning (Particulate) stds. | Notice of violation issued 9/21/73. Admin. order issued 12/12/73. | Presently complys with order. |
| Washington,<br>Lamont | Lamont, City of<br>Open burning | Violation of open burning (particulate) stds. | Notice of violation issued 9/21/73. Admin. order issued 12/12/73. | Presently complying with order. |
| Washington,<br>Oakdale | Oaksdale, City of<br>Open burning | Violation of open burning (Particulate) Stds. | Notice of violation issued 9/21/73. Admin. order issued 12/12/73. | Presently complies with order. |
| Washington,<br>Long Beach | Peninsula Sanitation Service<br>Open burning | Violation of open burning (particulate) stds | Notice of violation issued 10/17/73. | Compliance status being reverified. |
| Washington,<br>Whitman | Whitman County<br>Open burning | Violation of open burning (particulate) Stds. | Notice of violation issued 9/21/73. Admin. order issued 12/12/73. | In technical violation of order, county taking action. |

## SUMMARY OF CURRENT EPA ENFORCEMENT ACTIONS

## UNDER

## §112 - NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS)

December 1974

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| REGION I | | | | |
| Massachusetts, N. Brookhaven | Asbestos Textile<br>Textile Mfr. | Violation of NESHAPS (asbestos) standards | Admin. order issued 7/17/74. | Source is also in violatior with OSHA Regulations. Will shutdown or comply with EPA & OSHA requirement by 12/31/74 |
| Rhode, Island, Pawtucket | American Insulated Wire<br>Wire Mfr. | Violation of NESHAPS (asbestos) standards | Administrative Issued 8/1/74. | Maintenance to control device ceased violation, presently in compliance. |
| Vermont Eden | Eden, Town of<br>Road surfacing | Asbestos Tailings; source failed to respond to §114 letter. | Administrative order issued 5/9/74. | §114 response received. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Vermont, Hyde Park | Hyde Park, Town of Road surfacing | Asbestos Tailings; source failed to respond to §114 letter. | Administrative order issued 5/9/74. | Possible Cease and Desist Order. |
| Vermont, Jay | Jay, Town of Road surfacing | Asbestos Tailings; source failed to respond to §114 letter. | Administrative order issued 5/9/74. | Possible Cease and Desist Order. |
| Vermont, Lowell | Lowell, Town of Road surfacing | Asbestos Tailings; source failed to respond to §114 letter. | Administrative order issued 5/9/74. | §114 response received. |
| Vermont, Newport | Newport, Town of Road surfacing | Asbestos Tailings; source failed to respond to §114 letter. | Administrative order issued 5/9/74. | §114 response rceived. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| REGION II | | | | |
| New Jersey, Patterson | Brassbestos Mfg. Corp.<br>**Friction mtl.** mfg. | Violation of NESHAPS reporting requirements | §113 enforcement order issued 11/22/74. | Report received, under review. |
| New Jersey Millington | National Gypsum Co.<br>Asbestos shingle mfg. | Violation of NESHAPS reporting requirements | §113 enforcement order issued 10/24/74 | Report received, under review. |
| New Jersey, Boundbrook | Union Carbide Corp.<br>Plastic mfg. | Violation of NESHAPS reporting requirements | §113 enforcement order issued 10/16/74 | Source indicates use of asbestos will be discontinuec Awaiting confirmation. |
| New York Solvay | Allied Chemical Corp.-Ind. Chemical Div,<br>Chlor-alkali plant | Violation of NESHAPS reporting requirements | §113 enforcement order issued 6/25/74. | Source complied with order. |
| New York, Watervliet | Passonno Corp.<br>Bldg. Demolition | Violation of NESHAPS reporting requirements | §113 enforcement order issued 2/8/74. | Source complied with order. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| REGION V | | | | |
| Illinois, Chicago | Branderberg Wrecking Co.<br>Demolition | Failed to notify EPA prior to demolition of building containing as required by NESHAPS regs. | Criminal action re-referred to U.S. Attorney 1/28/74. | Dependent motion to dismiss criminal information pending before court. |
| Illinois, Chicago | Harvey Wrecking Co.<br>Demolition Co. | Failed to remove friable asbestos from building prior to demolition as required by NESHAPS regs. | Criminal action referred to U. S. Attorney 1/28/74. | Dependent motion to dismiss criminal information pending before court. |
| Illinois, Chicago | Keystone Wrecking Co.<br>Demolition Co. | Failed to remove friable asbestos from building prior to demolition as required by NESHAPS regs. | Administrative order issued 12/18/73. | Presently in compliance with term of order. |
| Illinois, | Nardi Wrecking Co.<br>Demolition Co. | Failed to notify EPA prior to demolition of building containing friable asbestos and did not remove asbestos as required by NESHAPS regs. | Criminal action referred to U. S. Attorney 1/28/74. | Dependent motion to dismiss criminal information pending before court. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Illinois, Chicago | Nat'l Wrecking Co.<br>Demolition Co. | Failed to remove friable asbestos from building prior to demolition as required by NESHAPS regs. | Criminal action referred to U. S. Attorney 1/28/74. | Dependent motion to dismiss criminal information pending before court. |
| Illinois, Chicago | Speedway Wrecking Co.<br>Demolition Co. | Failed to notify EPA prior to demolition of required by NESHAPS regs. | Administrative order issued 12/18/73. | Presently in compliance with term of order. |
| Toledo, Ohio | B & C Trucking & Wrecking, Co.<br>Wreckers | Failed to respond to §114 letter concerning NESHAPS asbestos demolition standards and notification requirements. | Admin. order issued 1/11/74. | Presently in compliance with terms of order. |
| Michigan, Detroit | Adamo Wrecking Co.<br>Demolition Co. | Failed to notify EPA prior to demolition of building containing friable asbestos and did not remove asbestos as required by NESHAPS regs. | Administrative order issued 12/18/73; criminal action, referred to U. S. Attorney 4/30/74. | Case awaiting trial. |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| Michigan, Detroit | Cuyahoga Wrecking Co. | Failed to remove friable asbestos from building prior to demolition as required by NESHAPS regs. | Admin. order issued issued 12/18/73. | Presently in compliance. |
| Michigan, Detroit | Sarko Equip. Inc.<br>Demolition Contractor | Violation of NESHAPS asbestos demolition regs. (demolition procedures and reporting requirement). | Admin. order issued 4/8/74. | Presently in compliance. |

| STATE/CITY | COMPANY/ TYPE of SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/ STATUS |
|---|---|---|---|---|
| REGION VI | | | | |
| Louisiana, New Orleans | Big Chief, Inc<br>Bldg. Demolition | Violation of NESHAPS asbestos requirements | Criminal action referred to U. S. Attorney 8/29/74. | Awaiting U. S. Attorney to initiate criminal action |
| Texas, Dallas | J&J Wrecking and Excavation Co.<br>Bldg. Demolition | Violation of NESHAPS reporting requiremen: | Admin. Order issued 2/22/74. | Source is complying with terms of order |

| STATE/CITY | COMPANY/TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| REGION VII | | | | |
| Kansas, Topeka | Vince Bahm Wrecking Co.<br>Demolition | Failure to report as required in NESHAPS regulations. | Criminal action referred to U. S. Attorney on 8/16/73. Administration order issued Feb. 25, 1974. | Presently in compliance with order. |
| Missouri, Kansas City | Centropolis Crusher Inc.<br>Stone Crusher | Refused to submit information required in Section 114 letter. | Order issued on 6/6/73. | All information required in the order has been provided. Source now in final complian |
| Missouri, Hannibal | Universal Atlas Cement<br>Cement Process | Refused to submit information requested by Section 114 letter. | Admin. order issued 10/1/73. | Source complied with terms of order. |

| STATE/CITY | COMPANY/ TYPE OF SOURCE | POLLUTION PROBLEM | TYPE OF ACTION | RESULTS/STATUS |
|---|---|---|---|---|
| REGION IX | | | | |
| Arizona, Globe | Jaquays Mining Corp.<br>Asbestos Mill | Violation of NESHAPS (asbestos) emission limitation. | Administrative Order issued 11/29/73. | Presently in compliance with terms of order |
| California, Riverside | Certain-Teed Prod. Corp.<br>Rock crushing | Violation of NESHAPS (asbestos) emission limitation | Aministrative Order issued 9/23/74. | Presently in compliance with terms of order |